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Studies in the History of Culture. No. 1.

THE SCRIPT OF HARAPPA AND MOHENJODARO AND ITS CONNECTION WITH OTHER SCRIPTS

BY

G. R. HUNTER

With an introduction by

Professor S. Langdon

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THE TEXTS OF

HARAPPA AND MOHENJODARO.

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AUTHOR'S PREFACE.

This work was submitted in manuscript to the University of Oxford in June 1929, when I was supplicating for the degree of Doctor of Philosophy. Subsequently the manuscript has reposed in the Bodleian Library. Permission to publish it was received from the Government of India, Archaeological Dept., in November 1932.

It is my pleasant duty here to acknowledge my obligation to the Archaeological Department of the Government of India for permission to copy the inscriptions which form the subject matter of this volume. Since this volume was written I have by their courtesy been enabled to copy all the inscriptions subsequently recovered from Mohenjodaro and Harappa up to April 1931. On this material I am still working. But it is important that I should here state that the study of this new material tends only to fortify most of the conclusions reached in the volume now offered to the public.

I take this opportunity of expressing my gratitude to Professor Langdon, who most kindly placed at my disposal his own researches on the subject, and to my wife, who did most of the monotonous copying and re-copying involved in the production of the Tables, and whose pen is responsible for all the actual draughting in this volume.

To Professor Langdon I am also indebted for all arrangements incidental to the publication of this volume, as also for reading the proofs.

Nagpur, India. The 24th of September, 1933.

G. R. Hunter.

INTRODUCTION.

Dr. Hunter has continued his investigations on the early Indus Valley Script, which he began at Oxford, by copying many more seal inscriptions, which were excavated by Mr. Mackay at Mohenjodaro since the material, placed at the disposal of Mr. Sidney Smith, Mr. Gadd and myself, was available. In Mohenjo-Daro and the Indus Civilisation, three large folio volumes edited by Sir John Marshall, Probsthain London, 1931, the script was investigated by the writers named above. Vol. II, chapter XXII, Sign-List of Early Indus Script, by C. J. Gadd; Mechanical Nature of the Early Indian Writing, by Sidney Smith; chapter XXIII, The Indus Script by the writer. Dr. Hunter has made an intensive study of greater material and has arrived at many valuable results of classification. Since Sir John Marshall's book was published, M. G. de Hevesy has called attention to the script of the Easter Island, Bulletin de la Societé Prehistorique Francaise, 1933, Nos. 7-8, Sur Une Écriture Océanienne. There can be no doubt concerning the identity of the Indus and Easter Island scripts. Whether we are thus confronted by an astonishing historical accident or whether this ancient Indian script has mysteriously travelled to the remote islands of the Pacific none can say. The age of the Easter Island tablets made of wood is totally unknown, and

all knowledge of their writing has been lost. This same script has been found on seals precisely similar to the Indian seals in various parts of ancient Sumer, at Susa and the border land east of the Tigris.

As to progress in the interpretation the way is completely barred by the lack of any conceivable clue for even a guess at a means of interpretation. Here is a civilisation of whose history nothing has survived. It is impossible to suggest even the name of an historical person or place of that time in India. No group of signs can be suggested as having any definite pronunciation and identified with any name which can be suggested. The only possible clue which suggests itself to me is that the Sumerians must have known this script in their intercourse with travellers from India who brought the Indian seals to Sumer. Fragments of lists of archaic signs have been preserved; on these tablets the Sumerians identify these archaic signs with signs of the classical Sumerian and Babylonian script. Naturally most of the archaic signs preserved and explained on these tablets are peculiar forms of old Sumerian signs, which can be fitted into their place in the history of Cuneiform epigraphy. But a few appear to me to belong definitely to the prehistoric Indus Valley script. I refer to two tablets both in the British Museum, 81-7-27, 49+50, published in Cuneiform Texts, Vol. V, Pl. 7 and three fragments all apparently from the same tablet,

said to have been excavated in the S.E. Palace at Nimroud, K.8520, published by Houghton in Transactions of the Society of Biblical Archaeology, VI 454. All these tablets come from Assyria, but the script used in the explanations of the archaic signs is that used in Babylonia *circa* 2000 B.C., a date not too far below the period in which Indus Valley seals are found at Kish, *circa* 2700 B.C. It is, therefore, entirely possible that the Babylonian epigraphists knew the Indus script. Now the scribe arranges the signs in order of the well known Sumerian Syllabary A and in CT.V7 Obv. 1 there is an extraordinary sign entered as the archaic form of NU, usual meaning negative "not", Sumerian value *nu*. This is totally unlike any archaic form of NU and may be the Indus sign 75 or 76 of my sign list. Naturally, if this thesis be true, all the scribe means to say is that the Indian sign means "not"; the phonetic value *nu* cannot be inferred unless the Indian language is Sumerian. *Ibid*. Rev. 11 2 there are extraordinary forms of the sign ŠAG "heart", restored by syllabary AII 52. One of these is identical with No. 87 of my list and two of them seem to be mere variants. If so, then the common Indian sign No. 87 means "heart", pronounced *ša*, *šag* in Sumerian. I do not mean to say that there is any certainty about this suggestion of the survival of Indian signs in the epigraphical texts of these Babylonian scribes. Sumerian texts of this kind or bilingual Sumerian and Indian inscriptions seem to offer the only possible help to which scholars may have recourse at present; for the Sumerians were the only literary people who knew this

only possible help to which scholars may have recourse at present: for the Sumerians were the only literary people who knew this writing and language when it was still written and spoken.

Dr. Hunter has presented here all the known material. His knowledge of all the existing variants of the signs is unsurpassed and I am glad to have the opportunity of commending his book to scholars as a trustworthy edition of the texts.

S. Langdon, Oxford, October 10, 1933.

The Script of Mohenjodaro and Harappa and its relation to other scripts.

Abstract

The material for the above work was provided by some 750 inscribed objects unearthed at the above-mentioned sites up to February 1927. These objects were mostly seals, containing on average about 6 signs apiece. A few copper coins were also found, and some slabs of clay impressed. There were also at Harappa several incised slabs of steatite which appear to have served as receipts.

The signs are clearly of ideographic origin, some readily recognisable pictures, e.g. of birds, but most are conventionalised, in many cases beyond recognition of their pictorial originals. Graphically the script bears a close resemblance to Proto-Elamite, and a less close to Sumerian of the Jemdet-Nasr and Fara periods, except as regards the anthropomorphous signs. The latter bear a close resemblance to Egyptian of the Old and Middle kingdoms. The resemblance to these three scripts seems too close to be accidental, but whether the connection is due to community of descent or borrowing cannot yet be determined.

One of the cardinal features of the script is a system of modifying basic signs (a) by internal and external strokes similar to the _gunu_ modifications in Sumerian. These do not always alter the sense or pronunciation (b) by the addition of one or more short strokes. The latter do modify at least the sound. These strokes are applied on exactly the same principle as in Brahmi, and with the same effect. Indeed the entire Brahmi 'alphabet' is shown to be derived from the script of Mohenjodaro and Harappa. It is also shown that those scholars were not mistaken who connected Brahmi with the South Semitic and Phoenician scripts. For there is

much evidence to show that these also were derived from the script of Harappa and Mohenjodaro (which I have called Proto-Indian). It is thus seen that Proto-Indian forms an important link in the history of the evolution of the alphabet from pictographic writing. The method adopted in elucidating the script has been to tabulate every occurrence of each sign together with those signs whose morphography suggested the possibility of their being variants. In this way certain sign sequences showed themselves to be of common occurrence. Thus it was possible to recognise variants and also words.

The languages of Harappa and Mohenjodaro are shown to have been one and the same. It has not been possible to determine from the material at hand the identity of this language. It appears however to be monosyllabic. It does not appear to be the language of the Proto-Elamite tablets. It is possible on the latter to recognise those sign groups which constitute proper names. Similarly on the Proto-Indian seals the bulk of the legend is always a proper name. Many signs are common to both scripts, but the sequences are quite different. If then there are no proper names in common it is not likely that the languages are closely related.

Many of the signs of the Cypriote syllabary bear a close resemblance to Proto-Indian signs, but the phonetic values of the latter, as far as these can be determined from Brahmi and the Semitic scripts, are irreconcilable with the Cypriote phonetic values. If connection there be it must have been at a period before Proto-Indian became a phonetic script.

The script reads normally from right to left, but occasionally from left to right, and sometimes boustrophedon. In the latter case the signs are sometimes reversed, but not always. It is certain that the reversal of a sign had no

effect on its significance. The reading is over the backs of the animal signs, as in Meroitic, but the anthropomorphous signs face the direction of the writing.

It has been possible to determine the significance of a few of the signs from the regularity of their occurrence in particular positions and contexts: In particular (a) the numeral signs, (b) the ordinal suffix, (c) the word for 'servant' and its determinative, (d) the ablative suffix, (e) the dative suffix, (f) the word for 'slave' and its determinative, (g) the word for 'son'. The coins bear the same names as the seals, votive tablets, and receipts, but of course without the dedicatory preface often found on the seals and votive tablets, and without the ablative suffix common on the receipts and not uncommon on the seals and votive tablets.

The work is divided as follows: (1) Introduction, (2) Descriptive catalogue, (3) Museum catalogue, (4) The direction of the writing, (5) Connection with other scripts, (6) Analysis of the Tables of Signs, (7) The Tables of Signs with a sign list, (8) A Comparative Table of Proto-Indian and allied signs, (9) An Appendix giving an analysis of Sumerian ideograms, with a view to elucidating their picto-graphic significance for the purpose of comparison with Proto-Indian.

THE SCRIPT OF

HARAPPA AND MOHENJODARO.

And its connection with other scripts.

LIST OF ABBREVIATIONS.

A.S.I.A.R.	Archaeological Survey of India, Annual Reports.
C.A.R.	Cunningham, Archaeological Survey of India, Reports.
C.H.I.	Cambridge History of India.
D.C.C.O.	Delaporte, Musée du Louvre, Catalogue des Cylindres Orientaux.
Del. en Perse.	Délégation en Perse, Mémoires.
H.	Harappa.
I.	The introduction to the present volume.
J.R.A.S.	Journal of the Royal Asiatic Society.
L.	Left.
M.	Mohenjodaro.
P.	Certain unpublished photographs of impressions from Proto-Indian seals.
R.A.	Revue d'Assyriologie.
R.	Right.
E.G.	Egyptian Grammar.

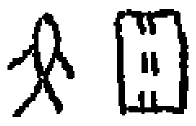
INTRODUCTION.

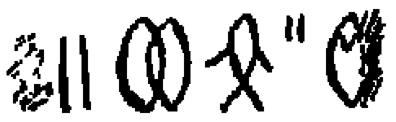
The existence of the script dealt with in this work has been known to Orientalists for half a century, or more. But it was not till the Archaeological Department of the Government of India took in hand the systematic excavation of the ancient sites now known as Harappa and Mohenjodaro that any considerable number of texts was forthcoming. Even now the texts we possess, though numerous, are very short, being mainly confined to engravings on seals. No stelae have as yet been found.[1] Nevertheless it is felt that the texts at our disposal are sufficiently numerous to justify the present attempt to collate them and classify their signs, and draw certain inferences regarding the nature of the script. Plates I to XXXVII indicate the extent of the discoveries of inscribed objects up to the close of the excavating season - late February - 1927. They are reproductions of autographic copies made by the writer at the Museums of Mohenjodaro and Harappa during March and April 1927. They reproduce, then, all the script that we at present possess with the exception of the following, which have already appeared elsewhere:-[2]

1. Nor have we a single example of the clay tablet, so common in Mesopotamia.

2. Except no. 11, below, and the few texts which in the Tables appear with their number preceded by P in col. II. These are taken from unpublished photographs to which the author has had access.

1. [1] R.A. Vol. 22, page 99.

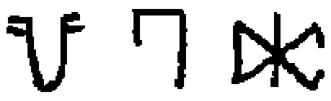
2.  J.R.A.S. 1925, Pl. X, p. 698.

3.  [2] C.A.R. Vol. V, Pl. XXXIII, and J.R.A.S. 1912, pp. 699, 700.

4. J.R.A.S. 1912, pp. 699, 700.

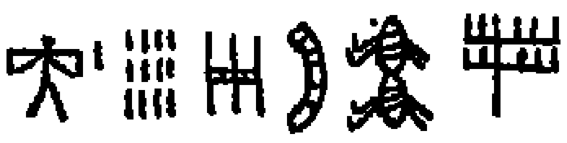
5. " " " " "

6. C.H.I. Vol. I, Pl. XI.

7.  " " " " "

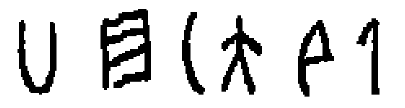
8. [1] R.A. Vol. 22, p. 56.

9. [1] D.C.C.O. Vol. I, Pl. 2, No. 8b.

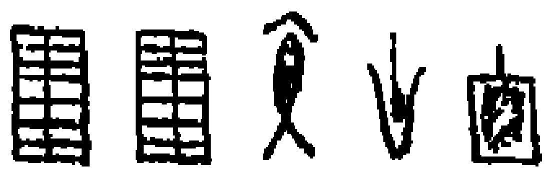
10.  D.C.O.O. Pl. 25, No. 15. Del. en Perse, Vol. II, p. 129.

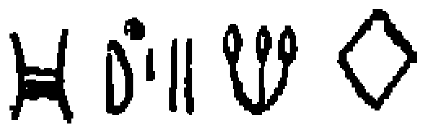
1. Recopied from the originals.

2. Shading indicates that the text is defaced or broken and incomplete.

11.  Not yet published.[1]

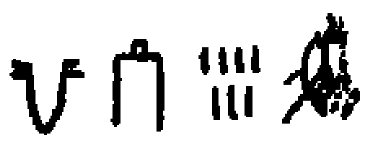
12. A.S.I.A.R. 1923-1924, Pl. XIV.[2]

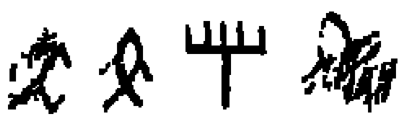
13.  " " " Pl. XIX.

14.  "The Times", Feb. 26th 1926.

15. The Illustrated London News, Oct. 4th, 1924.[3]

16. " " " "

17.  " " " "

18.  " " " "

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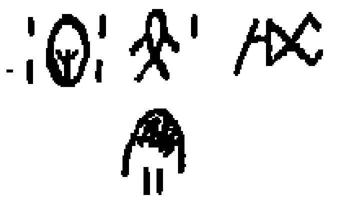
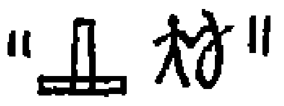
1. Copied from the original in the Louvre Museum. The original is a seal, circular, of stone dark green in colour. The signs are written in the upper semicircle parallel to the circumference. The lower semicircle shows a bull.

2. Nos. 12 to 35 are reproduced here with the signs as they would read on an impression. The photographs in the Illustrated London News reproduce the actual seals. Those in the A.S.I.A.R. and the 'Times' do the same.

3. The Illustrated London News published other seals besides those given here. Their texts will be found on Plates I to XXXVII among the others, being copied direct from the originals in the Museums of Mohenjodaro and Harappa.

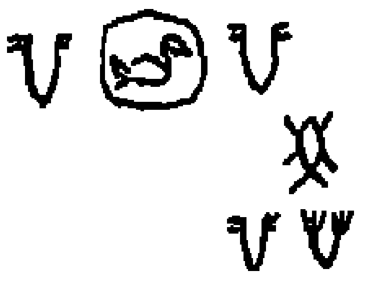
19.  The Illustrated London News, Oct. 4th, 1924.

20. " " " "

21.  " " " "

22. " " " "

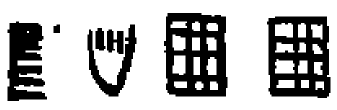
23. " " " "

24.  " " " "

25. The Illustrated London News 4-10-24.[1]

26. " " " " "

27. " " " " "

28.  " " " " "

29. " " " " "

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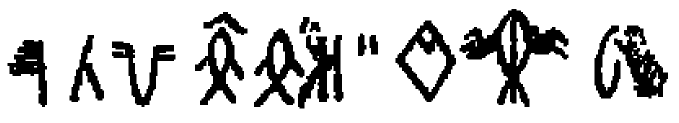
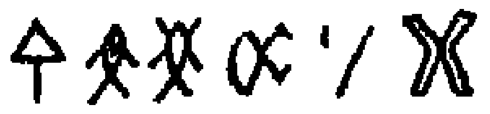
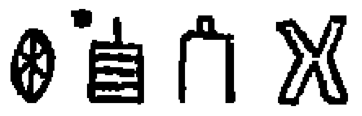
1. Nos. 15-19, 21, 23, 25, 27, 29, 30, were republished in Archaeological Survey of India, Annual Report, 1923-1924.

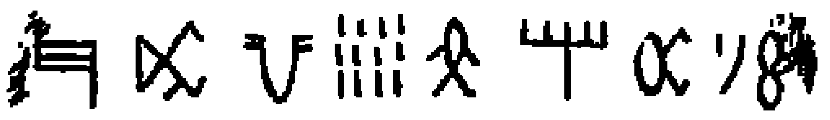
30. The Illustrated London News, Oct. 4th, 1924.

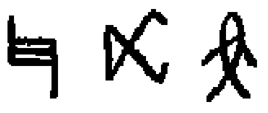
31.  The Illustrated London News, 6-3-26.

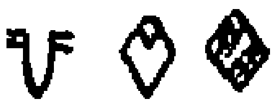
32.  " " " "

33.  " " " "

34. " " " "

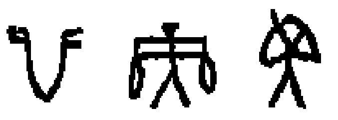
35.  " " " "

36.  " " " "

37.  " " " "

38. " " " "

A cursory examination of the script of Mohenjodaro and Harappa will reveal that it is distinctive. It is neither Sumerian, nor any other known script, though it bears certain resemblances to several. Some of these are doubtless coincidental, since in the very nature of picto-graphic writing it is hardly possible to avoid some similarity

in depicting the same object. A closer examination will establish that it is precisely the commoner signs of our texts that are the most distinctive - e.g. 

At the same time it would be rash, in the present state of our knowledge on the subject, to rule out of court the hypothesis of a common descent from some remote ancestor for the script of Harappa and any other pictographic script. We know so little, after all, of the ultimate pictographic ancestry of any script, even Sumerian.

Let us now refer briefly to circumstances and considerations that should be borne in mind when examining this script.

Race. It is not likely that the originators of the script were Aryans, since the latter are not believed to have entered India before 1200 B.C., at the earliest, whereas the script, as proved by Mr. Mackay's find at Kish,[1] existed many centuries before that date. It is probable that the Indus Valley prior to the arrival of the Aryans was inhabited by Dravidians, and that the Brahuis of the neighbourhood are a remnant of this stock; but this is not certain, nor would it exclude the possibility of a riverine or maritime folk of a different race being responsible for Mohenjodaro and Harappa.

There is a natural temptation to look for a connecting link between the agglutinative languages of ancient Sumer and Elam and the agglutinative languages of Modern India; and in this connection not only Brahui is of interest, but also the ancient tongue so far represented by a solitary cuneiform inscription from Herat.[2] It is of course obvious

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1.

2. See Sayce. Antiquity. June 1927, p. 206.

that the finding of a linguistic connection between Sumerian or Anzanite or the language of the Herat seal on the one hand, and any modern language of India of pre-Aryan origin on the other, taken in conjunction with the undoubted fact of intercourse between India and Sumer and Elam, would be a likely clue to the identity of the language of our inscriptions. But so far this connection has not been found. /Meanwhile, in looking for it the peculiarities of the Munda languages should not be ignored. That their present speakers are even more primitive than the Dravidians is historically not repugnant to the possibility of their ancestors having evolved an elaborate civilization five thousand years ago.

It is unfortunate that little information of an ethnological order has been yielded by the excavations:—a few skeletons, the position of which leaves it open to doubt whether their owners were not the victims of a mediaeval 'dacoity'; and a couple of busts of which Sir John Marshall has stated that their heads are unlike those of any modern race of Indian. But one would like to know whether any anthropometrical survey of the region has been made, and especially of the predominantly Brahui tracts of Baluchistan.

However, it is equally possible that the people of our script were a seafaring race, foreign to the India into which they had penetrated up the navigable Indus and its affluents. In support of such a contention it might be urged that the sites so far known of this civilization are confined to the banks of navigable rivers; that the fish (?) sign is peculiarly in evidence in their script; that they certainly brought bitumen overseas (from Mesopotamia ?) for the swimming bath at Mohenjodaro; and that while an abundance of seals have been found which were certainly used for stamping the sealings of merchandise, as is proved by the sealing acquired by V. Scheil (no. 8 above), which still bears on it the traces

of the fabric to which it was attached, such sealings are noticeably absent among the finds at Mohenjodaro and Harappa; suggesting that the seals were principally employed for stamping merchandise destined for abroad, and that Mohenjodaro was a great emporium.

It is also to be remarked that the houses are all small and surprisingly uniform in their dimensions, and that nothing resembling a king's palace has so far been discovered. This would also seem to point to a democratic (or oligarchic) trading community rather than to a native monarchy. Were these people the Phoenicians of the East? There are times when one is almost tempted to credit the legend of a lost Atlantis, placing it, however, rather in the Pacific and around Easter Island than in the Atlantic, and to wonder whether there, in early times, did not arise a Neolithic civilization and neolithic script which, spreading thence West and East overseas was the ultimate parent alike of Central American and Indo-Sumerian civilization. One thing that is certain is that there was much more travel and intercourse in archaic times than has been generally supposed. The history of navigation, from the time when the ocean-going ships of Tyre were succeeded by the coasting galleys of Athens down to the days of the Northmen, seems to be one of decay rather than progress. But before the Phoenicians it would seem to have been otherwise, and what was a daring voyage of discovery for Nearchus was perhaps a commonplace of normal trading for the sailors of Mohenjodaro. Indeed, it is possible that the sailors of Mohenjodaro embarked upon voyages much longer than that from the Indus to the Euphrates. I would invite a comparison of the seal[1] published as

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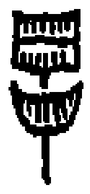
1. Provenance Crete, part of the Demargne collection, D.C.C.O. p. 94. There are several similar 3-faced, prismatic seals from Crete in the Ashmolean Museum, Oxford.

No. 13,a,b,c,d, (Δ 28) on plate 59 of M. Delaporte's Musée du Louvre, Cylinders et Cachets Orientaux, with the triangular prismatic objects of similar size found at Harappa (Pl. XXX, Nos. 62-83). The design on the side 16B of this Cretan seal may be compared with (see Table LXXI, col. IV) in Proto-Indian texts.

Date. Seals like the one found by Mr. Mackay have been found in abundance at various levels at Mohenjodaro and Harappa. The square seal portraying a bull, with one horn visible, standing in profile (facing right), with the symbol  in front of his fore-feet, and the text written horizontally across the upper portion of the face of the seal[1], is the commonest find at either site. Now this is the only Indus Valley find in Mesopotamia that can be approximately dated, unless we accept as of Indian provenance the seal found recently by Mr. Woolley, and accept also the genuineness of the cuneiform characters it bears. The latter, which was recently on temporary exhibit in the Assyrian basement of the British Museum would appear to belong to the third millennium B.C. The Kish seal also is not later than 2000 B.C. Meanwhile in India itself, while there is evidence of intercourse with Mesopotamia,[2] that evidence is insufficient to enable us satisfactorily to date any particular stratum of the ruins. There are a few square seals of black marble, similar in shape and size to those found in Mesopotamia of the archaic period. Some of these bear no legend, and have therefore not been included in these plates. But the ordinary

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1. See Plate I, No. 390.

2. Some of the pottery shows affinities with that of Monssian, of Susa of the second period, and Jemdet Nasr, circa 3500 B.C.

square seal with inscription, that has been yielded in hundreds by Mohenjodaro and Harappa, is different as to material, shape, and the ring attachment on the reverse from these archaic seals. On Sumerian and Elamite analogy, then, one would be inclined to ascribe the archaic-looking seal to the fourth millennium B.C.; while on the evidence of the Kish seal one would ascribe the ordinary seal with ring attachment to the third millennium and perhaps to part of the second also. This does not preclude the possibility of their survival into a later period.

The few circular, flat, clay objects, sometimes bearing a stamped inscription, and in appearance not unlike Phoenician Tesserae, which have been yielded by the excavations, may be of later date. There are objects very similar in appearance from Susa, exhibited in the 'Salle dite de Mastaba' of the Louvre. Another object apparently of late date is the fragment of a silver bar shown on Plate XXVII (No. 518). If the signs thereon are cuneiform of the 'nucleiform' variety, as they appear to be, it would seem that here we have a Babylonian export of comparatively late times. And this is about all the material we at present possess that can assist us in dating our texts.

It is clear then that we have no ascertained upper and lower limits, except that the lower limit was probably pre-Buddhist since a Buddhist stupa of the third century B.C. crowns the acropolis (?) of Mohenjodaro. Again the complete absence of Achaemenid remains at Mohenjodaro suggests that it was evacuated at latest before the establishment of Persian rule in that area. The upper limit may well be beyond 4000 B.C. The considerable ~~depth of superimposed~~ buildings all in burnt brick, evidently of successive epochs, which the excavations at Mohenjodaro have revealed suggest that

this civilization had a very extended duration. It is true that the script seems to have undergone remarkably little transformation throughout the period. But this need not surprise us when we remember the history of the monumental script of Egypt. The comparatively rapid changes in Mesopotamian cuneiform may be attributed partly to the invention of the clay tablet, and partly to the influence of foreign conquerors with no interest, religious or national, in preserving either cumbrous forms or ideographic values.[1] But in the Indus Valley the negative evidence is clear that the clay tablet failed to establish itself, while there is no positive evidence of foreign conquest. The various successive cities of Mohenjodaro do not appear to have been burned.

Language. If as I think Professor Langdon is right in deriving the Brahmi[2] script from that of Harappa and Mohenjodaro,[3] it follows that some of the latter's signs had acquired phonetic values by the time they were borrowed by the Hindus or - that which is equally possible - by an earlier race who passed them on to the Hindus. But little else follows. It certainly does not follow that the 'Indians' of Harappa and Mohenjodaro spoke Sanskrit - as Colonel Waddell appears to have thought - any more than that the Phoenicians spoke Greek! The possibility that the people of Mohenjodaro were the ancestors of, the Brahui has already been suggested.

Civilization. The people of the Indus Valley were in point of general civilization similar to their Sumerian and

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1. Cf. the writing of Anzanites in the cuneiform script in the days of Naram-Sin.

2. Another alphabetic script that may owe something to that of Harappa and Mohenjodaro is the South Semitic.

3. In an article not yet published.

Babylonian contemporaries. Their brickwork[1] is excellent; especially in the construction of their drains, which remain watertight to this day. Incidentally the size of the surface drains suggests that the rainfall, if seasonal, was heavy. Perhaps the monsoon visited Mohenjodaro in those days. There is no inherent meteorological improbability. In 1926 Karachi received over 10 inches of rain in two successive days, though the normal annual rainfall in modern times is under 10 inches. The apparent absence of irrigation works at Mohenjodaro would also suggest that in ancient times the rainfall was adequate. The presence of the elephant and the rhinoceros, and the absence of the camel in their glyptic designs supports the same conclusion. These people were clever craftsmen, working in many metals and stones. They made excellent pottery, which they decorated with taste. Some of these designs are still in local use today.[2]

Method of writing. The examples of direct writing that we possess are confined to objects of copper and stone.[3] On clay we have only stamped impressions. But it is obvious that the literature of this people was not confined to the 700 odd seals and amulets etc. unearthed. The absence of lengthier documents among the finds suggests that for ordinary purposes perishable materials were used. That clay was not among them has already been inferred. Perhaps they utilised skins, as Herodotus tells us the Phoenicians did, perhaps papyrus or

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1. It is interesting to note that in point of size and shape the bricks are similar to modern bricks, and quite different from the large square Babylonian brick. They resemble rather the bricks excavated by Professor Langdon at Jemdet Nasr. All the bricks are burnt. The finding of these perfectly-made, modern-looking bricks even at the lowest levels is one of the curiosities of Mohenjodaro.

2. See an article by the writer in the 'Times of India, Illustrated Weekly', May 7th, 1927.

3. Except for two signs scratched on a piece of pottery. See Pl. II, No. 21.

silk. The signs themselves, on some of our seals, suggest the influence of painting with a brush,[1] being splayed at the extremities. It is quite possible that here we have indications of a change of style due to the introduction of a new writing material, which, as future specimens come to light, may be of aid in dating our finds. The signs are traced vertically from top to bottom, and are arranged horizontally. The animal, in cases where there is an accompanying animal design, is usually placed immediately below the script, and faces to the right.[2] There are, however, some half-dozen cases in which the animal faces left.[3] The large number of signs yielded, after allowing for probable variants, makes it clear that the script is not alphabetic. It was probably, like Sumerian, a mixture of the phonetic and the ideographic. The first point to determine in any attempt to elucidate the script is the direction in which it reads. In accordance with Egyptian usage one would expect it to begin over the head of the subjacent animal and read towards the tail, i.e., in our case, from right to left. And this, as we shall presently show, is what we do find. It is interesting to note however that in the body of our texts the animal designs face to the left;[4] that is the script reads 'over their backs' so to speak, as in the Meoritic inscriptions. The anthropomorphous signs however face right.[5] Another

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1. See Pl. I, Nos. 89, 301, 409. There were several other examples showing an approach to this style of script. But it was not found feasible to reproduce in the autographs minute variations in the thickness of the signs.

2. It is of course to be understood that when speaking of direction in connection with seals it is always the direction of the impression taken from the seal that is intended.

3. Nos. 513 to 517.

4. See in particular Pl. XIV et seq. Nos. 277,292,365,406,451.

5. See Table XLIX,

observation is that the second line, when the space left by the subjacent animal permits, is frequently complete on the left; while, if sufficient signs to fill the line are not required, it is the space to the right that is left vacant. This in some instances is due to boustrophedon writing. But where we find two-lined inscriptions with both lines reading from the right, and in the second line a blank space left on the right, we may attribute this to an artistic or epigraphic tradition which required the end of the last line to contain the end of the inscription, just as the beginning of the first line contains the beginning of the inscription. The Sumerians evidently had the same convention. Reading from left to right they left the left end of the last line blank. Cf. Gudea, Cylinder A, Col. I, cases 6, 10, 14 - and passim in Sumerian inscriptions.

The dominant impression mentally registered after a survey of the sites and the remains of Mohenjodaro and Harappa, and especially of the inscribed objects, is that this civilization was independent: remarkably independent when its undoubted commercial connection with Mesopotamia is recalled. Consider the evidence of epigraphy alone. Among nearly 800 inscribed objects we have, to date, not a single inscribed brick tablet, cylinder,[1] cone or mace-head. This civilization vanished. How, when, and why is at present a mystery. The evacuation of Mohenjodaro seems to have been peaceful, and, judging by the comparative paucity of the finds of intrinsic value, deliberate. Probably a sudden shift in the course of the Indus - it is now four miles distant - was sufficient cause. But for the abandonment of the whole region a wider explanation must be sought.

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1. The cylinder seal found at Susa is presumably the work of a Mesopotamian craftsman to the order of an Indian client.

Possibly progressive desiccation of the neighbourhood was the cause. Meanwhile, this civilization does not appear to have vanished without leaving any influence on its successors. As already stated, Professor S. Langdon detects its influence on the Brahmi script, Sir John Marshall on Hindu religious symbols. But for Colonel Waddell's supposition that the people of Mohenjodaro and Harappa were the ancestors of the Hindu Aryans there is at present no evidence.

In the present fragmentary nature of our knowledge it is not possible to arrive at any final conclusion regarding the Proto-Indian script and its affinities. The provisional conclusions that I have reached on an examination of the evidence are these:-

1. The script as we have it is mainly phonetic.
2. It had a pictographic and ideographic origin.
3. That origin was many centuries before 3000 B.C., as is shown by the highly conventionalised form of the majority of the signs at that date.
4. There are clear affinities with Sumerian and Proto-Elamitic, which, in the case of Sumerian, increase as the difference in date increases, i.e., the resemblance of the script of Mohenjodaro to that of Jemdet Nasr (3500 B.C.) is much greater than its resemblance to the Sumerian of contemporary date (3000-2000 B.C.), showing that the common ancestry (or mutual borrowing) of the three scripts dates to before 4000 B.C.
5. That the homomorphous signs (Table XLIX), which are invariably silhouette, and are thus in marked contrast to the Sumerian (which used the head, neck and bust, but never the complete silhouette) suggest borrowing from Egypt.
6. That the superficial (?) resemblances to Cretan, suggest the possibility of the existence in remote times of a

very widespread race using a single pictographic system of writing.

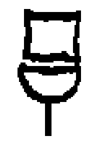
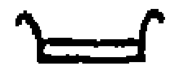
That the Brahmi, Sabaean, a portion of the Cypriote and a portion of the Phoenician scripts are derived from Proto-Indian, due in the last three cases to commercial intercourse by sea via the Arabian Sea, the Red Sea and the Mediterranean. It is possible that the Indians had the monopoly of seafaring as far as the Gulf of Suez, which would account for Hiram's eagerness for an alliance with Solomon that would allow the Phoenicians to establish a base at Eziongeber.[1]

1. 3rd Kings, Ch. IX 26 - 28.

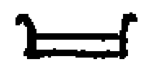
Descriptive Catalogue of the Texts.

Mohenjodaro.

Nos. 1 to 20. Stamped impressions.[1]

No. 1. A lump of burnt clay, bearing in the centre the imprint of a complete seal. This is the only object of its kind hitherto found in India. The only other one known was found in Mesopotamia (see No. 8 of the introduction). Beneath the inscription is an animal in profile, facing to the right, with only one horn visible. Below his head is a symbol, probably  . The majority of the inscribed seals of Mohenjodaro and Harappa portray an animal in profile facing right with either this symbol, or  , or a plant, placed below the head. It is suggested that the animal represents a divinity, and that the accompanying symbol represents an offering. With regard to the meaning of the script, it is probable that the seals were intended to serve much the same purpose as the Mesopotamian cylinder seals, and that their legends are, therefore, similar in meaning. A reference to the sign-list will reveal similar sequences in signs on the seals Nos. M. 70, 232-234, 462-464, 477.

Nos. 2, 3. Flat rectangular slabs of clay. There is no design accompanying the legend.

4. A piece of clay, shaped like a button. The inscription on the front hemisphere is accompanied by a subjacent bull[2] with two horns visible, with the  symbol at his feet; beneath the inscription on the rear hemisphere is a rhinoceros (?)

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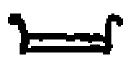
1. All sizes are approximately as shown in the plates, except as otherwise stated in these notes.

2. The subjacent animal is always to be understood as facing to the right, unless otherwise stated.

5. Clay. No accompanying design. Face flat. Reverse convex.

6. Fragment of a small thin slab of clay. A decorative design is impressed on the reverse.

7. Thin clay slab.

8. Similar in shape to the small, three-face, prismatic objects that are common at Harappa (see H. 62-83, 87, 88). On each face the legend is accompanied laterally by an animal design; a bull with two horns showing, and the  . Clay.

9. Thin flat slab of clay.

10. Rectangular stamp on a fragment of pottery. The only instance of stamped pottery on these sites.

11. In shape a dice. Yellow in colour. Impressed on all six sides; on three sides two sets of parallel lines crossing each other at right angles; on the fourth side two parallel lines; on the fifth side a bull with defaced superscription; on the sixth side the text shown, with a bull subjacent. No. 12 is identical, while there was also a third dice similar, but without any legible script.

13. Clay. Face flat; reverse convex.

14. Circular. Face and reverse flat. Clay. Below the legend is a bull (?). On the reverse is a decorative design. This object is about 8 mm. thick. In shape and size it is not unlike a Palmyraean tessera.

15. Clay slab. The script and design on face and reverse are identical. The design - which accompanies the script laterally to the left - is apparently a rhinoceros.

16. Similar to 15. Clay.

17. Clay slab.

18. Three-faced prism of clay. The signs extend vertically over two faces.. The design[1] on the third face is most interesting as tending to establish the sacred nature of the bull on our seals, and also the orientation of our 人 signs. It is clear that the men are walking from left to right, holding the standards (tables with offerings?) in front of them. Signs (Table XLIX. 63, 64. C, I IX) bear a strong resemblance to the last man (reading from the right).

19. Clay slab. Reverse, two goats.

20. Clay slab. The space to the right is occupied by a goat. Beneath its head is Y . The reverse is identical.

The paucity of stamped clay at Mohenjodaro - some 18 articles - compared with the large number of seals - about 450 - is noteworthy.

No. 21. Inscribed pottery.

This is the unique example of inscribed (as distinct from stamped) pottery. The V is three inches in height. The signs are roughly scratched with a sharp instrument on a round plate, or dish, about 1 foot in diameter. Probably the owner's identification mark.[2]

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1. See Plate I, No. 18c.

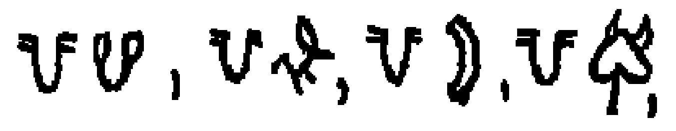
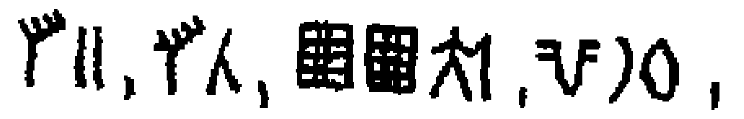
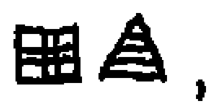
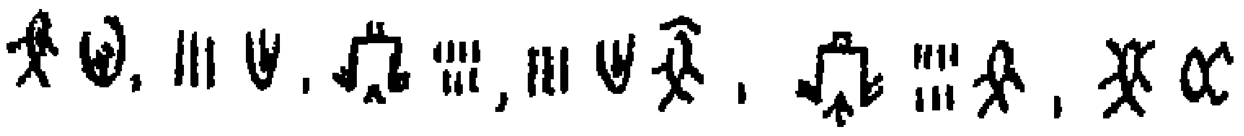
2. Cf. Harappa No. 61, where the signs are probably a builder's mnemonic.

Nos. 22, 23. Inscribed stone.

Fragments of black marble bracelets, or anklets. The signs are clearly and cleanly incised with a sharp instrument. These are the only examples at Mohenjodaro of direct writing (as distinct from the preparation of seals) on stone.

Nos. 24-61. Inscribed copper.

These pieces of copper, thin rectangular slabs about $\frac{1}{8}$th of an inch thick, of a standard size, would appear to be pieces of money. As far as is known they are unique, nothing similar having been found in archaeological sites in other countries. On the reverse they bear animal designs similar to those on the seals. The writing is now difficult to read owing to corrosion. The fact that several of the inscriptions are identical suggests that they give the names and titles of rulers, of the issuing authority, or of the place of issue.

It is hardly possible that they give the value or weight of the coins, since we find entirely different legends on coins of the same size, weight, and material. Now it will be found on examination that almost all of the sign sequences found on these coins can be paralleled from the seals: indeed in two cases the complete legends are identical: viz. the coin M. 42 and the seal M. 481; the coin M. 54 and the seal I. 15. Similarly the sequences   which are found at the end (left) of the copper-coin inscriptions, are likewise found at the end of the seal inscriptions, as a glance at the Tables will show; and the sequences   which are found at the beginning (right) of the copper-coin inscriptions are likewise found at the beginning of the seal inscriptions.

It is clear then that we have on the coins the same kind of inscription as on the seals, and, from our universal experience of seals in all countries and all epochs, this can only be Proper Names. So then the copper inscriptions set forth the names, titles, or styles of the persons who issued the coins, probably the rulers of the state. With this thought in mind we may re-examine nos. M. 24-31. It will be shown later[1] that is but a 'spelling-out' of . Nos. 24-31 then are identical, and might have all been written as Nos. 30 and 31 . These signs are to be read from right to left.[2] They probably constitute the ruler's style. The last sign is so generally last as to be almost certainly a suffix. The first sign is very like the Hittite sign for 'King', and the second like the Hittite sign for 'land'. One is tempted to regard the as the suffix of the genitive case and read 'King of the land'.[3]

Another conclusion that may be drawn from these copper plaques is that the signs used in our inscriptions are independent of the accompanying animal design. Nearly all these coins have an animal design on the reverse, in some cases too indistinct to determine; but No. 30 has clearly an elephant, while No. 31 has something quite different. But their legends are identical. No. 43 has an animal looking like a reindeer, with three plants or trees at his feet; no. 44 shows a hare. Other designs, as far as I was able to discern them, are the bull[4] (in 32, 33 the head is turned to look backwards towards the tail), a tiger[5] and a goat.[6] The

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1. In the analysis of Table 1.

2. See pp. 31 et seq.

3. But see page 55 below Note 1.

4. Nos. 25-29, 32, 33, 48, 51, 53, 56, 57.

5. No. 60.

6. No. 61.

seals also witness to the mutual independence of the animal designs and the legend.

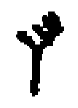
No. 62. Terra-cotta seal.

This is the only example at Mohenjodaro of a terra-cotta seal.

No. 63. Copper seal.

An incised piece of copper, in shape quite unlike Nos. 24-61, some 4·5 cm. long, 1 cm. wide and ·75 cm. thick. The inscribed face is flat, the back rounded. From the reversed orientation of the writing on the original it was clearly intended as a seal, and I have autographed it accordingly as from an imprint.

Nos. 64 to 123. Stone Rectangular Seals.

Mostly of limestone or steatite. The inscribed surface is flat but the reverse is convex, varying in thickness from 2-3 mm. at the edges to 7-12 mm. at the centre. At the centre they are perforated breadth-wise by a single hole. There is no accompanying design either on the face of the seal or elsewhere. The rectangular pieces of stamped clay (see discussion of Nos. 1-20) were probably obtained from seals similar to these. It will be noted that on the seals, as on the copper coins, the commonest final sign is , and the next commonest  (with variants).

Nos. 124-126.

Similar to Nos. 64-123; but not perforated.

Nos. 127-129.

Similar to Nos. 64-123. Perforated; but with flat instead of convex reverse.

Nos. 130-132.

Similar to Nos. 127-129; but inscribed on reverse as well as face.

No. 133.

The top and bottom sides are blank.

Nos. 134-141, 143, 145, 147-153.

Seals of the same type as Nos. 155-437, except that there is no visible design accompanying the script.

No. 139 is interesting, as being the longest inscription hitherto found, and the only one running into three lines.

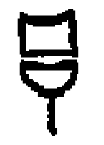
Nos. 142, 144, 146

have not got the usual perforated projection on the reverse. Nos. 144 and 146 are peculiar as to size, and are correspondingly thin, (about 2 mm.). They are of the size shown in the plate.

No. 154.

Grey limestone. Circular. Flat. Inscribed on face and reverse. Unperforated.

Nos. 155-437.

Square. Surface flat. Sides perpendicular. Thickness from 5 to 10 mm. Reverse flat except for a perforated projection or attachment. Mostly white, yellowish, or light grey in appearance, and composed of limestone or steatite. These seals are remarkably uniform in their proportions, and appear to be of standard sizes. They are all accompanied by the bull, standing in profile and facing right (See Plate I, No. 390). One horn and one ear only are depicted. The bull in these seals is invariably of the European and not the Indian type. The horn is usually shown plain without the parallel 'shading' shown in No. 390. Beneath the head almost invariably appears the symbol  , the principal varieties of which are given on Plate I. This is the distinctive seal of both Harappa and Mohenjodaro, outnumbering all the other seals. It will be observed that nearly half

of these seals and with the sign

No. 439.

The peculiarity of this seal is that the boss on the reverse side is inscribed with the sign

No. 440.

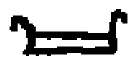
The face and reverse have the ordinary bull design. The top and bottom sides are blank and perforated by a hole, for stringing the seal.

Nos. 441 to 509.

Square seals, similar in shape and appearance to Nos. 155-437, but with different designs accompanying the legend.

441-456. Design, Indian bull (see Plate I, No. 449).

457-475. Design, as in Plate I, No. 453.

476. The Indian bull, but in place of  we have the symbol , apparently a plant or tree.

477. Design as in Plate I, No. 453. Inscribed on the upper edge as well as on the face.

478-487. Design, an elephant (see Plate I, No. 478).

488-494. Design, an animal resembling a rhinoceros. Before the forefeet the symbol .

495. Design, a boar (?) with

496. Design, a beetle (?).

497. It seems doubtful whether the sign shown in the plate is intended as a legend. Accompanying it is a three-headed goat.

498. Design, a crocodile.

499. The left side of the square contains a tree; the lower half a dog (?)

500, 501. Design, a tiger (see Plate I, No. 500).

502. Design, a deer.

503. Design, an animal difficult to identify.

504. The script is at the bottom of the seal, most of the remaining space being occupied by a tree (See Illustrated London News, 27-2-1926).

505. Below the script, from right to left appear a horned lion, a horned man, and a tree. The lion and the man face right.

506. The middle space is occupied by a decorative design.

507, 509. Design, a fictitious animal with two horns and a trunk.

508. The left side is occupied by a tree. The lower half of the seal contains a tiger.

Nos. 510-512. Circular seals.

510. Design, bull. Similar to seal in the Louvre (see Introduction, page 3, no. 11).

Nos. 511, 512. Fragmentary. The design in each case seems to have been a central circular body, from which protruded several heads. There would appear to have been seven on No. 512. Of the four heads visible, two possess two horns apiece, the third possesses one, and the fourth none. If the remaining three heads (?) possessed 2, 2, and 1 horns respectively, we have here perhaps the beast 'with seven heads and ten horns' familiar to the writer of the Apocalypse.

Nos. 513-517.

Square seals, with animal designs, similar to those already noted, but with the subjacent animal facing left. It is possible that here we have examples of engravers[1] mistakes, as is not unknown in Mesopotamia, the animal and legend being engraved as though for direct vision instead of

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1. Cf. D.C.C.O. Planche I, No. 7a (T. 13).

for viewing on an impression.

513. Design, bull. One horn visible. In place of the symbol we have an object ; apparently a plant. Compare this with the signs in Col. IV of Table XVII.

514. Bull as in Pl. I, 390 (but facing left).

515. Design, an animal not identified, with one horn visible.

516. An animal with two horns, spread thus —γ— [1].

517. Design, the hind-quarters of a bull are visible.

<u>Harappa</u>.

Nos. 1-83.

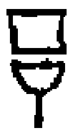
It was noteworthy that at Mohenjodaro the inscriptions other than seals were practically confined to copper coins. At Harappa, however, while we have only one copper coin, we have a fairly large collection of inscribed receipts(?)/votive tablets(?). That they are not seals is shown both by the orientation of the signs and by the nature of the incisions. They are, for the more part, thin whitish slabs of limestone; very brittle, and less than $\frac{1}{8}$th of an inch thick. It will be observed that, while they contain few signs that do not also occur at Mohenjodaro, there is a marked difference in the frequency of certain signs and sequences of signs. But if these objects are receipts it is not surprising that their legends should differ from those of the seals. In particular we may note the rarity of the final in these texts; the fact that nearly all these objects are worked on the reverse[2] as well as the face; the appearance of new shapes of certain signs, e.g. the is frequently written . The objects are all flat[3] as to both face and reverse.

1. The horns, when two are drawn, are always depicted frontally, not in profile, but this is the only pair of horns showing this particular shape.
2. If the reverse is not shown in the plates it is to be understood that it is blank, unless the contrary is stated in these notes.
3. Except as otherwise stated in these notes.

Nos. 28, 29. While the face is flat the reverse is spherical.

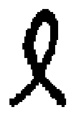
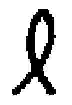
No. 23. On the reverse a crocodile.

No. 33. Square seal. About 8 mm. thick. Perforated attachment on reverse. Beneath the legend are a few indeterminate scratches. This text belongs to the group Nos. 123-243.

Nos. 40, 41. Cylindrical in shape. The space to the left on the reverse sides is occupied in the originals by the  symbol placed horizontally.

No. 42. Cylindrical; a hard dark-coloured stone. The reverse shows a divinity in a shrine (?).

No. 45. Cylindrical. Reverse: a tree.

No. 53. Reverse, a crocodile, with the sign  held vertically in its jaws, and accompanied by the sign written horizontally in each corner. This would seem to establish definitely that the sign is a fish, and  a differently written variant.

No. 61. The signs are about three inches long on the original, which is a fragment of a large circular stone that may have served as a door-socket.

Nos. 62-83. Small three-faced prismatic objects of limestone. Unperforated. All three faces are worked (except in the case of No. 80) bearing either inscription or design or both. They are shown complete with design on Plate XXX.

Their significance is discussed in the analysis of Table XXXVI.

Nos. 84-86. Copper.

No. 84. A copper coin, similar in shape to those found at Mohenjodaro.

No. 85. A broken slab of copper about $\frac{1}{8}$ inch thick.

No. 86. The signs shown in the plate appeared on a copper dagger about 5 inches long. There were several other copper daggers in the Museum, but they had not been cleaned and so were illegible.

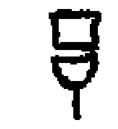
Nos. 87-122. Impressions on clay.[1]

No. 87. Three-faced prism, two faces of which are covered by a single pair of signs.

No. 89. Reverse, a plant .

No. 90. Cylindrical. The space to the left of the legend on the reverse is occupied by a plant.

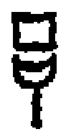
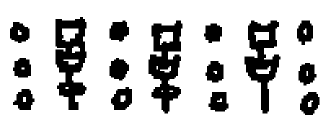
No. 92. Reverse, a plant.

No. 93. Reverse, the space to the left is occupied by a bull with <u>two</u> horns standing over the  symbol.

No. 95. Face, the space on the right is occupied by what appears to be a hare. There are six of these slabs all found together, identical in all respects, including a pronounced twist that was given to the slabs before burning. From this it is clear that a number of these slabs were prepared, impressed with the same seal and then baked together. These stamped clay slabs, manufactured en masse and bearing the owner's name on face and reverse can only have served as votive tablets. Doubtless they were placed before the family god to keep him in mind of the householder's prayers.

No. 101. Fragment of a ring. The legend is on the concave surface.

No. 102. Cylindrical. On the reverse is a centipede.

No. 105. Two identical specimens. The reverse contains a design that recalls the  . 

No. 107. This gives a clue as to the nature of the motif. It is clearly a religious emblem or offering that can be carried in procession like a standard. Compare Plate I (M.) 18.

No. 109. Reverse: a plant.

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1. Flat slabs unless otherwise stated below.

No. 110. Face: the space to the left is occupied by a human figure with tail, standing extreme left and facing right. Facing him is a seated figure with raised arms and long hair. Reverse: the space on the left is occupied by two felines, standing on their hind legs and facing one another. The space on the right is occupied by a man seated up-side down. Suspended from his legs is a large insect.

No. 112. Reverse: in the space on the extreme right is a plant.

No. 115. Clyindrical.

Nos. 116, 119. Cylindrical. Reverse: a crocodile.

No. 121. Reverse: convex.

No. 122. The lower half of the face shows a bull.

Nos. 123-137. Limestone and steatite. Inscribed on the face only. The shape is as shown in the plates, except that Nos. 126, 130 and 133 are squares. The rectangular shaped seals have convex backs, as in the similar seals from Mohenjodaro (M. 64-123), and they are similarly perforated. No. 129 shows one of these. The 'o' in the middle of the reverse is not a sign but the hole that perforates the back of the seal. The square seals have the usual ring attachment. No. 137 is of black marble.

Nos. 138-149; 152-161. Inscribed on the reverse as well as the face. They are not perforated and are similar in appearance to the inscribed objects Nos. 1-60, to which group they belong. They are not seals.

Nos. 141, 144. Four-faced prisms.

No. 145. Face: in the space to the right appear five swastika signs in a row. Reverse: in the space to the left appear a man and a tiger.

No. 150. A square seal. The face contains a bull but no legend. The reverse is blank.

No. 151. A square seal of black marble.

Nos. 162-227. Square seals. Mostly limestone and steatite. Perforated boss as back, same as Mohenjodaro. Design exactly as on the Mohenjodaro seals nos. 155-437. (Plate I, no. 390). We also note the same sign sequences as at Mohenjodaro. Clearly the same language as well as the same script prevailed at both places.

Nos. 228-231, 233, 234. Rectangular seals. Flat. Worked on face and reverse.

No. 229. Reverse: tortoise (?).

Nos. 228, 230, 231. Reverse: crocodile.

Nos. 232, 235. Stamped clay: cylindrical in shape.

Nos. 236-239. Square seals, like nos. 162-227, but showing a bull with two horns.

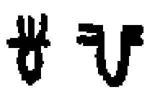
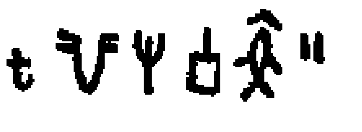
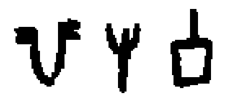
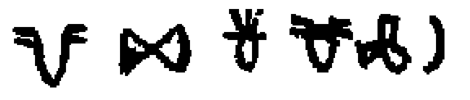
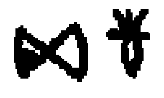
No. 240. Square seal. Design: elephant.

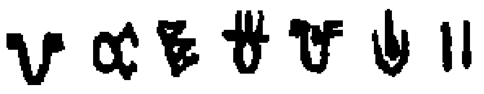
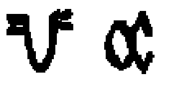
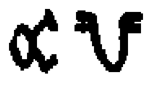
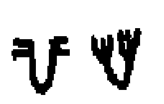
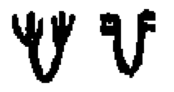
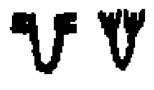
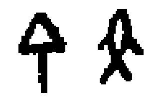
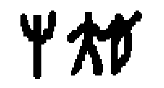
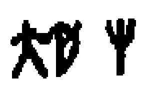
No. 241. Fragment of a square seal. The space to the left contains seven men in a row, each holding the one in front of him by the hand. The men are looking to the right.

No. 242. To the left of the script (?) is a tree, to the right an animal.

No. 243. Flat square seal. Reverse also flat, no ring attachment. It is also without the clear cut rectangular sides of the ordinary seal. It is perforated throughout its breadth by a hole. It thus resembles the archaic seals of Mesopotamia. It is doubtful whether the sign ◎ on this seal is anything more than a decorative device,

THE DIRECTION OF WRITING.

The orientation of the Proto-Indian script is, in the large majority of cases, from right to left, i.e. the signs are placed successively in a horizontal row starting from the right. Evidence of this is afforded by a comparison of the sequence of the signs in texts containing two or more lines on the same face, with the sequence in single-line texts. Attention may first be directed to the single-line texts containing as their left-hand sign. Of these there are 177 at Mohenjodaro and 31 at Harappa (see the Plates passim, but especially V, VIII, IX, X, XI, XII, XIII.) It is clear that a large proportion of our texts - nearly one third - either begin or end in . Now examine M. 303, 516, 391, 365. In M. 303 being the only sign in the second line is clearly the last sign. If then we read the script from left to right we must place at the extreme right of the text and read which gives us the sequence  which is found nowhere else; whereas if we read the script from right to left and place at the extreme left we get  etc. a sequence of four signs which occurs no less than five times elsewhere - M. 184; 89; 124; 9; and H. 90. - while the three signs  occur in a dozen other texts (see Table I nos. 49-65). Treating M. 516 the same way we get  which not only gives us in its common position but also the sequence  Now it is significant that the only other occurrence of the sign , viz. M. 447, shows precisely this sequence. There can be little doubt then that both the lines in M. 516 are to be read from right to left (starting of course with the upper line). It is not to be inferred that the second line is always to be read from right to left. Cases of boustrophedon writing, though

apparently rare, undoubtedly occur. M. 391 is a case in point. While the upper line reads from right to left the lower one reads from left to right. This reading gives us 
No other reading is tenable in face of the evidence of M. 161; 162; 462; taken in conjunction with the evidence of Table LII, which shows  nine times and  not once. No. M. 366 however is clearly not boustrophedon. That the second line in this text is to be read in the same direction as the single-line texts is clear from the sequence , which is found eleven times, while  is nowhere found. The two lines of M. 366, then, are to be read in the same direction. That this direction is from right to left is indicated by the position of , which in single-line texts is found almost invariably as a left-hand group. (See Table VI). We may now examine the other inscriptions containing more than one line on the same face. M. 139 is our longest inscription containing three full lines of script. Each line is to be read from right to left. In the case of the first line this is proved by the sequence  which is one of the commonest sequences in our texts, occuring twentyone times (see Table LXVIII). In the case of the second line it is proved by the sequence , to which we have already referred; and in the case of the third line by the sequence , which occurs elsewhere five times, while its reverse  is nowhere found.

Regarding M. 141, the position of as a right hand sign makes it probable that the first line reads from the right. Regarding the direction of the second line there is no evidence, as the signs thereof are nowhere else found in association.

M. 151. The first line shows a sequence normal in single line inscriptions (see Table XXV), and therefore reads from right to left. Regarding the second line the evidence is scanty. and are not elsewhere found together, and the only

instance where and are found is H. 44. But as shown in the analysis of Table LXVI and are <u>not</u> variants of the same sign. However, they probably represent allied sounds, as is explained later, and it is possible that the of H. 44, and the of M. 151 are the same word with a dialectal variation of pronunciation. There are many such instances of dialectal variations recorded in the script, as we shall see. Provisionally then I have assumed that we have in H. 44 and M. 151 the same word, and have accordingly read the second line of M. 151 from left to right.[1]

M. 162. The first line is from right to left. This is clear from the four signs on the left, a sequence we have already examined under No. 391. The second line also reads from right to left. If we read it otherwise we have final preceded by , which is nowhere found, whereas is found in seven other cases. (see Table XC.)

M. 450. The sequence on the right of the first line is one of the commonest in the script. It occurs in this position in single line inscriptions thirty times, or if we treat as a variant of sixty-eight times (see Table XXIV). It is clear then that the second line is to be read to the left, not to the right, of the first line, therefore the reading of all single line inscriptions with or on the extreme right are to be read from right to left. Taking these inscriptions together with those ending in , we have no less than 247 inscriptions which demonstrably read from right to left. This may be accepted as conclusive evidence of the normal direction of the writing at Mohenjodaro and Harappa, at least as

1. In the tables I have written out the texts with more than one line as they would have been written had the scribe placed all the signs in one line. This was essential for purposes of comparison. The reader can readily discover whether any given text in the Tables has more than one line by referring to the list immediately preceding the Tables.

regards single-line inscriptions and the first line of multiple-line inscriptions. It remains to consider the direction of the writing of the second line in the remainder of the inscriptions with more than one line, i.e. to determine how many of them are, like Hittite, boustrophedon. In regard to no. M. 450 there is virtually no evidence. is never found followed by and only once by (M. 40) and that in a context where the latter sign clearly associates with the sign preceding it and not with the . Still in this, as in all cases where no evidence is obtainable from sign sequences in other texts, I have for purposes of transcription assumed a right to left reading, as this is the reading on the majority of second lines where the direction can be determined.

M. 193. Not boustrophedon, as is never found as a final sign. (see Table XXI).

M. 230. Not boustrophedon, since (i) is never final, (ii) medial is found in M. 355, (iii) final is found twice (see TableXCIX).

M. 341. Probably boustrophedon, since is often final (Table LXVI) while only once (Table LVI). Neither sign is found elsewhere following , so that the evidence is very slight.

M. 232. Boustrophedon, since is a common sequence (see Table XLVI and its analysis).

M. 417. Not boustrophedon, since() is found elsewhere followed by and is found similarly preceded by while no element of a sequence () is found anywhere.[1]

M. 447. Not boustrophedon in view of the sequence Cf. M. 516 discussed above.

M. 455. Not boustrophedon, since is never final (see TableXXXI) whereas is, as already noted.

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1. See Tables XI, XXVI.

M. 477. The third line is from right to left in view of the sequence (see Table VIII).

M. 499. Not boustrophedon since is final in M. 508 (Table XLIX).

M. 506. Read from the right

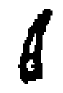
M. 514. is unique. But it is probably a defective form of . The latter is not found elsewhere associated with , but it does appear following in M. 163. The evidence is thus very slender, but such as it is, it points to a boustrophedon reading.

H. 107. The top line reads from right to left. Cf. M. 20 . The bottom line is probably boustrophedon, giving with the reverse, which is from right to left, the sequence which is fairly common. (see Table XLVI).

H. 241. The evidence is practically nil. If is a variant of the group then a comparison with M. 366 would suggest a right to left reading.

I. 24. The sign in the second line is clearly to be read to the left of the first line, and the signs in the third line to the left again. This gives us as our final sequence. We have this sequence in H. 38; while is a common final sequence as already noted.

M. 235, 237, 245, 353, 409, 492, 508, I.19, H. 166, all contain a single sign in the second line. In every case the first line is to be read from right to left and the sign of the second line as the final sign. It will be noted that the second line sign in nos. M. 235, 409, I. 19, is a variety of , which in the single line inscriptions also is invariably final (see Table XXVII nos. 1, 3, 4); in nos. 245, 492, it is , which is also normally final (see TableXCIII), which is further confirmation that the script reads usually from right to left.

M. 133 is interesting as containing not only two lines on the same face, but legends on three other faces. By a comparison of the sequences with those found elsewhere the reading can be established as follows. Begin with top line of face, read right to left. Then second line of face left to right. Then reverse right to left. Then right side left to right. Then left side. It will be seen that the reading is boustrophedon throughout. Another peculiarity is that in the lines where the direction of the writing is reversed (i.e. left to right) the form of the non-symmetrical signs is also reversed, on the Hittie plan. Thus we have  for (see Table LXXXIII) for (see H. 227).

The consideration of this inscription brings us to our next category of multiple line inscriptions viz. those that have only one line on each face, but have more than one face inscribed.

M. 132. Clearly boustrophedon. The face reads from right to left, while the reverse is clearly left to right, being the last three signs of the face reproduced in reverse order. Again the direction of the writing in the case is proved by the fact that elsewhere is invariably final (see Table LXIV).

H. 118. Boustrophedon. The face reads left to right, the reverse right to left. This is less surprising at Harappa than it would be at Mohenjodaro in view of the fact that at Harappa many of the single line inscriptions read from left to right.

In the remainder of these inscriptions the writing is in the same direction on each face and that right to left for the most part. Those in which the writing is from left to right (principally Harappa) are so indicated in the Tables by placing an asterisk against the inscription. For the most part the inscriptions on the different faces seem to be independent of one another. This is clearly the case in no. M. 132, noted above, where the inscription on one side is an abbreviation of that on

the other. An extreme form of this is M. 439, where the sign on the reverse seems to stand much as an initial does to a name. Again in some cases the inscription on either side is identical, viz. M. 16, 18, H. 145. A large proportion of the inscribed objects at Harappa have V III or V IIII on the reverse. It is clear that in these cases the reverse has no syntactical relation with the obverse. Returning now to the inscriptions with two or more lines on a single face: only in two instances M. 303 and 391 have we reason to suppose from the sequences that the signs in the second line form part of the word or phrase in the preceding line; while in some cases, notably M. 139, 193, 230, 453, it is almost certain that the sense of the first line is complete in itself, and that what follows is an additional name or title.

No. 139 indeed looks like a Sumerian 'burgul' seal, a seal with the names of three different men (perhaps as in Sumer, fashioned for the purpose, combining the names of the parties to a contract in a single seal). It is significant also that this seal alone of all the <u>square</u> seals bears no glyptic design, which again recalls the Sumerian contract seal.

It remains to remark that at Harappa there are several instances of single-line inscriptions reading from left to right. At Mohenjodaro there are only two (M. 513, 515).

THE CONNECTION WITH OTHER SCRIPTS.

The discovery of any new script at once suggests a search among existing scripts for possible ancestors or descendants. In pursuing this search one naturally first directs one's attention to those scripts which are (a) contemporary in date and from which there may have been borrowing, and vice versa, (b) those which are found in the same locality at an earlier date, (c) those which are found in the same locality at a later date. In the present instance category (b) is entirely wanting. In category (a) we have Sumerian, Proto-Elamite, Egyptian and Minoan. In category (c) we have Kharoshthi, Brahmi, and Sabaean. With regard to Kharoshthi its descent from Aramaic is proved. Not so, I think, in the case of Brahmi. It is true that Bühler's derivation of the Brahmi syllabary[1] from the Semitic scripts has long held the field. But it was never universally accepted. Cunningham in particular believed it to be derived from a lost pictographic source. A detailed refutation of Bühler's equalisations seems unnecessary in view of the positive evidence set forth in the Comparative Table (Appendix III). It will be seen that I accept certain of Bühler's equalisations with the Phoenician, but these are precisely the cases where it seems that the Phoenician signs themselves are probably derived from Proto-Indian. Now it may be argued that the interval of time between the disappearance of the civilisation of Mohenjodaro and the first appearance of Brahmi (c. 300 B.C.) is too great to make a direct descent probable. But what do we know concerning the lower limits of the Proto-Indian civilisation? The bricks of the Buddhist stupa at Mohenjodaro lie immediately

1. It is incorrect to speak of the Brahmi characters as alphabetic. No signs except the vowels stand for single letters.

upon Proto-Indian remains. Nothing has so far come to light to suggest that the Proto-Indian civilisation came to an end before the Aryan invasion. And it must be remembered that the script that we possess is all monumental - seals, sealings and coins. It is quite possible that alongside of this there may have been a demotic approximating more closely to the script of the Eran coin and Asoka inscriptions.

With regard to Sabaean the time interval is less. And though the inscriptions may not antedate the sixth century, a much earlier date is claimed for the beginnings of the Minaean empire, and presumably for the origin of the script also. If distance is urged as militating against the probability of Sabaean being derived from Proto-Indian, it should be remembered that the distance from the mouth of the Indus to the Sabaean coast is less than 1000 miles, that the monsoon winds are absolutely reliable and sailing conditions ideal, making it possible during six months of the year to sail from Karachi to Aden with the shore almost continuously in sight without tacking once, and during the other six months to perform the same feat in the opposite direction. Again, both areas were known to the ancients as Ethiopian. In view of the fact that both the form and the names of some of the Sabaean signs have not yet been satisfactorily accounted for, it has seemed to me legitimate and desirable to bring out in tabular form the undoubtedly striking resemblances between Sabaean and Proto-Indian.

With regard to contemporary scripts:

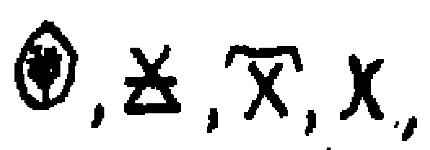
Many of the signs bear a remarkable resemblance to the monumental script of Ancient Egypt. The entire body of anthropomorphous signs have Egyptian equivalents which are virtually exact. And it is interesting to note that not one of these anthropomorphous signs have the remotest parallel in Sumerian or Proto-Elamite. On the other hand there are many of our signs

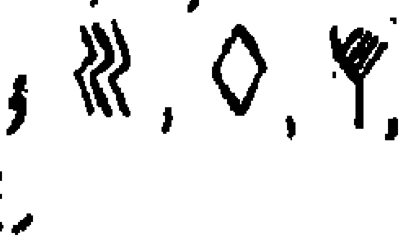
that are exactly paralleled in the Proto-Elamite and Jemdet-Nasr tablets, such as that have no conceivable morphographic equivalent in Egyptian. One is bound to conclude that the presumption is strong that our script has been borrowed in part from Egypt, and in part from Mesopotamia.[1] Of course there is a considerable proportion of signs that are common to all three scripts, such as the signs for tree, fish, bird. But this is coincidental, and indeed inevitable in the very nature of pictography. It is only safe to draw inferences of causal connection where the less obvious and more conventionalised ideograms, especially those that are so conventionalised that their pictographic origin is hardly determinable, show a marked correspondence; and in a lesser degree, where easily recognisable pictographs show the same variations. Now the latter is very marked as between our script and Proto-Elamite, as will appear from a study of the Comparative Table.

The resemblance of our script to Proto-Elamite is closer than its resemblance to Sumerian. This is natural in view of the geographical proximity of Baluchistan to Elam. The resemblance to Sumerian is not really apparent till we reach the Jemdet-Nasr period. Now the script of that period (B.C. 3500) is so closely related to Proto-Elamite that Professor Langdon affirms a common ancestry of the two. This would seem to be confirmed by the evidence of our script, which approaches the Sumerian in similarity in measure that the latter approaches Proto-Elamite. One is led to the conclusion that the element in our script which was borrowed from Mesopotamia was borrowed at a period before the

1. This is just what we should expect, if, as has been suggested in the Introduction, our people were a race of overseas traders, like the Phoenicians.

separation of the Sumerian and Proto-Elamite scripts. Of course it is possible that all three had a common ancestry, and that the Egyptian element in our script alone was borrowed. It is even possible that all four scripts may have had a common origin. But this is an enquiry that does not concern us here, and which in the nature of pictography, would be very hard to solve without the aid of anthropological evidence as to whether or not there was in prehistoric times racial affinity between the inhabitants of the Nile, Euphrates and Indus valleys.

The connection between Proto-Indian and Proto-Elamite is so close that Professor Sayce has suggested that the languages may be allied.[1] This I have endeavoured to test. There is no doubt that our texts are entirely proper names (and titles). If the languages are allied we may expect identity of some at least of the proper names. Now in the Proto-Elamite tablets it is possible to detect the proper names with some degree of certainty: see the analysis of Tablet No. 490 by Father Scheil on page 30 of Vol. XVII <u>Mémoires de la mission archéologique en Perse</u>. Applying his method I have collated all the proper names occurring on the tablets in this volume and vol. VI containing certain signs that could be reasonably safely identified with Proto-Indian signs to see whether in any case the same sequence of signs could be observed. The method adopted was the same as that adopted in the preparation of the tables of Proto-Indian texts. The signs selected as possible equivalents of Proto-Indian signs were 

; the various bird signs ; 

and their variants. Every occurrence of each of these signs in all contexts that could

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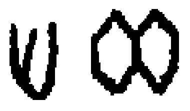
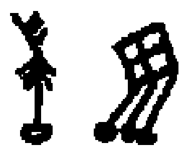
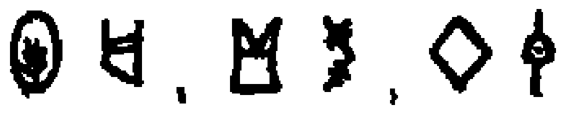
1. See <u>Antiquity</u>, June 1927, p. 206.

conceivably be proper names was tabulated. The result was that out of 355 occurrences the only sequences discernible that tallied with those of our texts were:

" XVII. 346. cf. M. 18.  XVII. 73. 5.) cf. H. 53.
VI. 373. 4.)

XVII. 73. 3. cf. H. 137.

2•3 cf. Table XLVI.  XVII. 17. 1.
cf. M. 143.

This is less than might have been anticipated as the result of mere coincidence, and infinitely less than we should have expected had there been any causal connection between the scripts. Indeed the evidence is in the opposite direction, for there are sequences containing signs that are common to both scripts, which, found frequently in Proto-Elamite, are absent from Proto-Indian, and vice versa, e.g.  in Proto-Elamite; in Proto-Indian. It is then fairly certain that while the scripts are allied the languages are quite distinct since they have not a proper name, and scarcely the element of a proper name, in common.

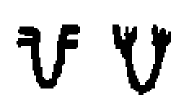
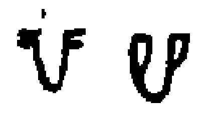
A survey of the possible affinities of Proto-Indian with Hittite and Minoan is not included here, not for lack of superficial resemblance, but for lack of space and time, and because it was deemed better to investigate the apparent affinities with scripts which were already very fully deciphered. An exception has been made in the case of Proto-Elamite on account of its proximity both in time and place to Proto-Indian. The inclusion of Cypriote in the comparative table was made on the principle that at this stage of the work of deciphering Proto-Indian it was desirable to include in our comparative survey all independent and deciphered scripts. Chinese has not been included because after

a study of the articles of Mr. Hopkins in the J.R.A.S. supplemented by a visit to view his collection, and especially after receiving the considered opinion of Mr. Hopkins who spent a week in examining my autograph copies of the Proto-Indian texts, I concluded that the relationship, if any, was too remote as between Proto-Indian and the earliest Chinese of the Honan bones, to warrant a detailed investigation at this stage.

My conclusion is that the Proto-Indian script is connected as to its origin with Egypt on the one hand, and Sumer-Elam on the other; that the script is, on the majority if not on all of our texts, a simplified syllabary of open and closed syllables, roughly 250 in number, many of them constituting complete words; that from the open syllables of this script are derived the Brahmi quasi-alphabetic script, and a large portion of Sabaean; that it is quite possible that Phoenician and Cypriote are likewise modifications of Proto-Indian, which however presupposes a common meeting ground of their sailors and merchants in the Isthmus of Suez and the mines of Sinai - at least evidence of any such intercourse at this point would assist in deciding whether the morphographic resemblances are coincidental or not. This of course reopens the question of the origin of the Alphabet, and suggests that Proto-Indian was an all-important link in the chain of its development from pictographic origins.

Analysis of The Tables of Signs.

Analysis of Tables I and VI.

It will be shown on the completion of the analysis of these tables that we have only 234 distinct signs, apart from compounds. Now the Brahmi script makes provision for 33 consonantal and 8 vowel sounds (ă (inherent) ā, i, ī, u, ū, ē, o). Now a syllabary consisting of 33 consonants each articulated with 8 following vowels would give us 264 signs. The number of syllabic signs required to form a simple syllabary of open syllables to represent Brahmi sounds 50 closely approaches the number of signs on our Texts that we may be moved to assume that our script is mainly a syllabary of this kind, as a first working hypothesis; provided of course we are previously impressed by the evidence of the Brahmi signs being derived from the Proto-Indian.[1] But this hypothesis has not been assumed before first investigating the script to discover whether an ideographic conception was tenable. It is not. There is clear evidence in Table I itself of the presence of phonetic elements. We may first take the sequence  . Of this will be seen to be a simple variant.  (variant) is clearly closely allied. For is followed by final or quasi-final[2] in every case save one (T. VI. 31) and with

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1. See evidence of Comparative Morphographic Table. It is not to be inferred that any relation between the language of the Proto-Indians and the Aryan of the Asoka edicts is implied. Sanskrit and Pali and the other Prakrits had by this time absorbed the phonetic elements, notably the cerebral sounds of the Dravidian population.

2. The in Table VI Nos. 18-21 is an independent suffix. See analysis of Table LVIII.

its variants is similarly followed in every case save one (T. VI. 5). Now if we compare , with preceded by other signs, we shall find that of the 17 signs and sign-groups found immediately preceding , no less than 16 are also found immediately preceding alone, and that frequently. Compare T. I. Nos. 6-20, 22-38, with Tables LV, LXV, XXXIV[1], XCII, LIX, XIII, LI, XLVI, XXXI, LXXXIV, VII, XVI. In these 16 combinations the proportion of occurrences with an intercalated or to those without is as follows:

3:8; 3:7; 1:4[1]; 1:1;
1:7; 2:3; 2:1; 1:4;
1:1[2]; 1:6; 1:3; 1:6;
1:2[3]; 3:3; 7:2; 1:1.

There seems good reason to conclude that , is a 'spelling-out' (as we so frequently have in Sumerian and Assyrian names) for . It is probable that , which is so often final, is an open syllable. The principle which we see in Brahmi of regarding the simple form of every sign as containing as inherent final <u>ă</u>; and the fact that to this day in the Indian vernaculars words that we should regard as terminating in a consonant (from their pronunciation) are always regarded by the Indian grammarians as possessing a final <u>ă</u> and written accordingly; and the fact that in Sumerian, words appear to have been similarly so regarded, since the Sumerian never <u>says</u> <u>lugal-na</u>, <u>lugal-ka</u> but always lugala-na,

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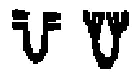
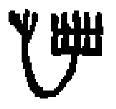
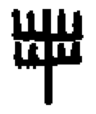
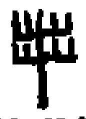
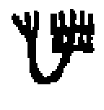
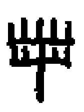
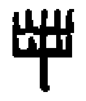
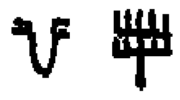
1. See Analysis of Table XXXIV for identification of with

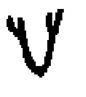
2. It is possible that this bird sign is a variant of the bird sign in No. 21 of Table I. In that case the proportion will be 2:1, and incidentally all 17 of the signs preceding , will have been found preceding

3. For identification of with see analysis of Table XXXI.

lugala-ge etc., should make us be prepared to regard signs which are normally final (as is) as open syllables: while a sign which like , is <u>never</u> final we may provisionally regard as a closed syllable. If then  is a 'spelling-out' it is something in the nature of <u>ak-ka</u>. Whether this doubling of the consonant in the script had any counterpart in pronunciation (as in Assyrian) or not (as in Sumerian) is difficult to say. If it had it may well have been due to the quantity of the preceding vowel. The combination  is peculiarly interesting. Not only from its appearance, but from the fact that it is always followed immediately by final, we may be sure that it is a compound and that one of its elements is . The other element is clearly  (see Table XVI). It is equally <u>certain</u> that this compound is phonetic and not ideographic. If it were ideographic, then by all our knowledge of ideographic writing its meaning must necessarily be different from . How then shall we account for its being found invariably in the same circumstances as . But this is not all. and though closely allied as shown from their relationship to are not actually variants. This is clear from the regularity and difference of their antecedents. If we take as <u>ak</u> we may take as <u>ek</u>[1]. Probably the selection of one or other of these syllables in the 'spelling-out' process was influenced by the quality of the vowel of the preceding syllables, a principle common to Sumerian and many languages - vowel harmony. Now it is surely most significant that these same alternations of and are observable in the compound formed with  . If then

1. It is of course to be understood that the selection of any particular consonant or vowel for purposes of illustration in the analysis of the Tables is arbitrary. For the selection of vowels see Analysis of table XXIX.

there is a difference of initial vowel as between and there is clearly a vowel difference between  and . But if  be a full syllable in itself, as must be presumed, and if that syllable is fully pronounced in the compound, then, with this constant syllable intervening, the carrying of vowel harmony over and in spite of it on to would be incomprehensible. But suppose that the syllable  is, on combination with truncated, that it loses its vowel, that ba-ak becomes bak; ba-ek, bĕk. Then everything is explained: the syllable bak' has become bĕk under the influence of something antecedent. In other words the compound represents the contraction of an open and closed syllable into one 'compound' syllable, and the first element in the compound has been reduced to a mere consonant, it has lost its inherent ă, it is what the Sanskrit grammarians call halant. This is precisely the principle governing the formation of compound (Samyukta) signs in Brahmi and Nagari to this day. If we are right the sequence  (which twice occurs) is to be read ba-ka, while is b'ak-ka; a mere graphic variant as in Sumerian.

With regard to the sign  and its variant form , the latter is probably original, and may be taken to represent a pair of arms with hands. This is one of the signs that shows affinity with Egyptian. See Gardiner, E.G. p. 445.D.28. The sign , which as we have shown is but articulated with a different vowel, is morphographically so akin to that it may well have arisen from it. This would imply the deliberate differentiation of signs to supply cognate phonetic symbols. There is abundant evidence of this elsewhere, as will be noted in the analysis of other Tables. In the present instance this differentiation will have been made by adding

to a horizontal stroke in each half,[1] producing
The further modification to , is probably of the <u>gunu</u> order, and without effect on sense or sound.[2] The deliberate modification of a given sign to provide a symbol for a cognate phonetic value would presumably arise first in the case of syllables which, not forming a complete word in the language, or forming a word that was difficult or cumbersome to express ideographically, could not be written otherwise. It is an intelligent device that the cuneiform users seem never to have taken, being content to the end to represent e.g. <u>ah</u>, <u>ih</u>, <u>uh</u> by a single symbol. As far as we know Proto-Indian would appear to have been the first script to adopt this device. It is not without interest to observe that Ethiopic and Brahmi have the same traits. With regard to the shape of , it probably represents a vase or jar with two handles, the upper horizontal elements representing the lips of the vase, the lower its handles. For the variety of its shapes and its Sumerian and Egyptian affinities see the Comparative Table.

With regard to the meaning of , at any rate of final, we may say that it is an affix. That it is an affix is suggested (1) by its normal position at the end of the text, (2) that it is preceded by well defined sign groups which there is reason to regard as complete words, either names of gods used in the formation of proper names, or titles, (3) that when it is found in the body of the text it is normally preceded by precisely the same combinations. That it is a

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1. The symmetry of Proto-Indian signs is one of the characteristics of the script. It is in harmony with the artistic sense of its users, so abundantly exemplified in their glyptic designs on these very seals. In the modification of signs this symmetrical principle was continued, each equal portion (whether $\frac{1}{2}$ or $\frac{1}{3}$) of the sign receiving the same modifying strokes. See Tables V, XV, XIII, LXXIV, LXXV, LXXVI, CII, CVII.

2. As often is the case with Sumerian <u>gunu</u> signs.

suffix which is not a determinative is probable for the following reasons: (1) If [sign] be a determinative its frequency indicates that it is one of a very wide class. 'Man' and 'scribe' are the only two that seem possible. But if it is either of these how do we account for its presence on the copper coins where we should expect rather the determinatives of king or ruler? If we reply that the determinative [sign] = man was probably used after all men's names whether rulers or not, then how do we explain the fact that a large number of typical square seals end in [sign] or [sign] which, as is shown in the analysis of Tables XV and LXVIII, stand in exactly the same relation to their antecedent <u>words</u> as [sign] does to its antecedent words? So that if [sign] is a determinative then they also are determinatives. No! If [sign] is a determinative after men's names, it is only one of several, and it would be difficult to account for its prevalence on the coins, in place of one of the more distinctive determinatives. While if we are right in deciphering one of these coins 'King of the land', [sign] would have to be regarded as a determinative either of 'king' or 'land', which in view of its prevalence on the seals, is impossible. So much for the negative evidence.

(2) That [sign] is a suffixed element in name-formation is strongly suggested by a comparison of Tables I and LXVIII. It will be seen that [sign] like [sign] is normally final. Like [sign], if followed by any single sign, it is followed by [sign], [sign]. Like [sign] it is preceded by well defined sign-groups that clearly constitute words. <u>But</u>, the three distinguishable words that precede [sign], viz., [sign], [sign], [sign]. , occurring as they do 26 times are never <u>once</u> found preceding [sign] while of all the many sign-groups found regularly preceding [sign]

not one is found preceding [sign] . Are we to assume that all the men whose names ended in, say., Enlil, Nannar, -mansum, were leather workers, and all other men whatsoever were scribes? For that is the position to which we are reduced if we insist on regarding [sign] and [sign] as determinatives.

We must now consider the forms [sign] etc. Table I, Nos. 348-400, Col. IV. The first thing we notice is that these forms are never found at the end of a text. Secondly we note that they are often found with the same antecedents as [sign] . Compare Nos. 269-273 with 346-353, 375-6, 387; Nos. 49-65 with 354; Nos. 164-168 with 359. Nos. 243-245 with 360; No.309 with 364; No. 321 with 365; No. 43-44 with 367-368; 330-331 with 369; 157-163 with 372, 376; 195-197 with 373, 398; 290 with 382; 138-148 with 392, 399; 215-217 with 400.

The example [signs] has this peculiarity: it is the one combination commonly found with [sign] in which [sign] is not final. In all the other combinations with [sign] ,the [sign] is final in the totality or large majority of occurrences; with [signs] it is not once final, but on the contrary, in all five occurrences the combination is initial. But I doubt if this signifies anything more than that this combination is a name (of a deity?) that lent itself to employment as an initial element in the formation of proper names. When we find [signs] it is the same word with a change of vowel in the final syllable. In the case of this word [sign] would appear to have its normal use as a suffix, and consequently [signs] also. But there is no reason to suppose that in their other[1] occurrences the [sign] group are other than the syllabic elements of roots. It is significant that the great majority of combinations commonly found preceding [sign]. are not found preceding the [sign] group (i.e. the signs in the

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[1] i.e. other than those in which a comparison with [sign] has been invited above

4th column of Table I, pp. 6 & 7). Thus both the form of the signs, which suggest deliberate differentiation from , and the circumstances of their occurrence combine to show that they are syllables allied to but not identical[1] with . Taking this evidence in conjunction with what has been observed concerning the modification of we may assume as a working hypothesis that both in the case of open and in the case of closed syllables signs were modified by the addition of short straight lines to represent syllables containing the same consonant but a different vowel.

We may now consider the function of certain signs that follow when the latter would otherwise be final. These are , , and .

Now follows not only , but (which we have seen is functionally similar to) and a miscellaneous collection of signs (see Table LVIII). It is probably a suffix. Allowing for the difference in the number of inscriptions as between Mohenjodaro and Harappa this sign is proportionately seven times as frequent in Harappa, where it appears on 77 texts as against 20 at Mohenjodaro. But these are mostly business receipts (see analysis Table LVIII). occurs twice after and four times after other signs. It is in every case final. It may be taken as a determinative. (See Table LXIV). in 9 out of its 10 occurrences (see Table XI) is final. It follows 3 times, and of its

1. A further proof that they are not identical is that is found on one and the same seal in conjunction with other members of the group. It will be observed however that of the other members no two varieties are found on the same inscription suggesting that they are mere variants of each other, or phonetically interchangeable. This is further borne out by the presence of the same sequences with different members of the group, which are not found with . Cf. Nos. 361 and 381; 355 and 386; 357 and 390; 372 and 378.

other antecedents one is . It may be taken as a determinative. is final in 6 out of 7 occurrences (see Table CIV). It follows 4 times, and twice. It is probably a determinative.

 when final is preceded by 13 times out of a total of 15. The proportion is so high as to suggest that it may stand in functional relationship to the it follows. It is perhaps the determinative of the word 'servant' ( ). That in point of grammar and syntax the combination of   appears to hold the same position as simple is suggested by the fact that, like , when final it is liable to be followed by the determinative suffixes and   (see Table XLIX, 11, 14).

We may now examine the condition of that which is neither final nor quasi-final, but truly medial, being followed by several signs which are clearly words or portions of words, and not mere determinatives or suffixes. We shall observe a very interesting phenomenon. medial is preceded by signs which form complete words, sometimes complete texts! . The same words which precede final. It is then performing the same function as final. The sense of the inscription may then be said to halt at this medial, just as it does at final; i.e. we have reached the end of a word or phrase, complete with suffix; what follows must be something new - a further name or title. And this inference is confirmed by an examination of what follows medial in our texts. It reveals that medial <u>is</u> followed by complete names, sometimes found by themsevles as complete texts. The best illustrations of the argument in this paragraph are:-

Table I. 17, compared with I. 14-16 on the one hand, which shows

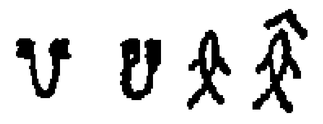
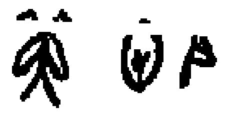
that  is a complete text[1]; and LXX. 2,6,7 on the other hand, which shows that  is a complete text.

Table I, 41 compared with I, 39 and VII, 1, 49, 45, 48 and passim.

T. I, 51[2] compared with T. I, 50 and XI, 2, 19, 27, 38, 37, 39, 78, 97.

T. I, 139 compared with T. I, 138 and XI, 28, 46, 47.

T. I, 106 " " T. I, 103 and I, 206, 209.

T. I, 230 " " T. I, 122 and I, 200 and Table LXXXVI[3].

T. I, 192 " " T. I, 191, 193, 194 and Table XII,3, 2,) 4, 14. (

T. I, 213 " " T. I, 212, 211 and T. I. 243-245.

Other examples might be given, but these are sufficient to substantiate our contention.

In Nos. 339, 341—347 appears to be used simply as a syllable forming part of a word; in these cases it has probably no sense-connection with the suffix.

It remains to consider Nos. 4, 5 and 385 of Table I. If, as we have reason to believe, and are merely a spelling out of the same word (with a dialectal or euphonic modification of its pronunciation) which word when suffixed is usually written , it follows from Nos. 4 and 5 that the full word is a bi-syllable ak-ka (perhaps pronounced as though containing a single consonant). Now it has been urged that this word is a mere suffix. How then do we explain its appearance alone? A clue to the explanation is afforded

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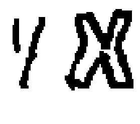
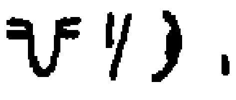
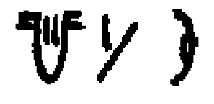
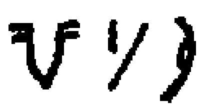
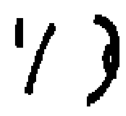
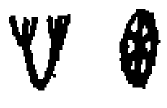
1. On see analysis of Table XIII, and on the detachable nature of " and its antecedents see analysis of Table XXX.

2. With regard to the short perpendicular stroke ' being a mere liaison semi-vowel, virtually equivalent to a point of punctuation see Table XXIX analysis.

3. From which it will appear that  is a word in itself.

by No. 385, where is found alone on each face of the prism (H. 77). While at Harappa I did not copy the design accompanying each of these in the blank portion of the prism, as I did not at that time appreciate its importance; I made a record in my notes however that the design was a figure like that shown on M. 440, facing right on face (a), left on face (b), and the figure of a woman (?) facing right on face (c). In the case of No. 4 (M. 24) the design on the reverse of the coin was too effaced to be distinguishable, while regarding No. 5 (M. 503) I observed one horn and a portion of an animal whose identity I could not determine. Now it has been shown above that and are allied sounds, and that in the case of the word ,  they are undoubtedly variant pronunciations of one and the same word. I suggest then that in and in of Nos. 4, 5, and 385 respectively we have the final element (suffix) of the word , the portion being represented pictorially by the divine or heroic figure. In other words  is the name of the figure in H. 77 and M. 440. If this is so, as what sort of a suffix are we to regard ? If the three seals are intended to give the owner's name, like all other seals, this name can hardly be <u>Enlil-la-ge</u> or <u>Enlil-ra</u> but only warad-enlil; or, to give a Hindu parallel which will be closer as preserving the order of the Proto-Indian, not Narayan-ka or Narayan-ko, but Narayan-Dass. In other words final is a suffix not in the sense of a grammatical suffix but as a suffixed element, 'servant' or the like, used in the formation of proper names.

The last 3 signs in Col. IV of Table VI are compounds. The last is a phonetic compound for . If and

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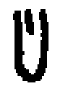
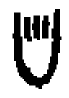
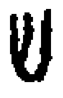
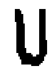
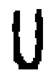
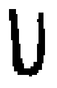
1. In which case the coins M. 25-31 should be read not 'King of the land' but 'servant (of the) King (of the) land.'

are both closed syllables, as there is reason to believe (see analysis of Table XXIV) there can be no case of contraction or elision here. The compound will be either ideographic or integral (i.e. each syllable being pronounced fully as is the case with Sumerian compound phonograms.) The two preceding signs are probably phonetic compounds of the integral sort. The compound is resolved in text No. 5. The reason for writing integral syllables as a compound is probably the same as in Sumerian: viz., that they form one word.

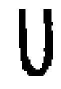
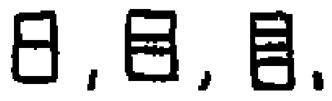
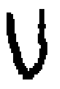
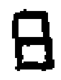
Analysis of Table II.

The similarity of the form of the signs in Col. IV suggests that they may be variants or represent allied sounds. That they are not <u>all</u> variants is clear from No. 22, where and appears on the same text. But that is closely allied to in sound and can take its place, is clear from a comparison of Nos. 15 and 16. It is interesting to compare with . For just as is clearly a member of the group (cf. I. 401 with I. 391 and I. 51, 139. 331, 357) and probably a graphic variant of ; so clearly belongs to the group and is probably a graphic variant for , which is not found on these texts (perhaps to avoid confusion with which is ideographically quite distinct). Again a comparison of Nos. 24 and 25 shows that  and are variants, which again is parallel in the group. The sequences in Table II give no direct evidence as to the value of , but the analogy of the group suggests that should be regarded as phonetically allied to  and . There is nothing repugnant to this in the sequences, while the morphography of the sign strongly supports

such a view. We may conclude therefore that  is a syllable. That the remainder are graphic variants of a sign which was formed by a deliberate modification of  to represent an allied syllable.

The last two signs in Col. IV are variants of each other. The sign is a compound of  and .

Analysis of Table III.

Really no evidence on which to form an opinion. The similarity of shape suggests that the two signs in Col. IV are identical. If it is phonetic its rarity is a matter for surprise, unless it be a compound. It may possibly be a compound of  and  (see Table CIII). It is seen from and that  and  are found elsewhere as compounds. (See Tables II and XXVI).

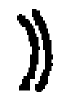
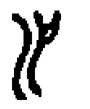
Analysis of Table IV.

That the first two signs in Col. IV are simple variants is suggested by a comparison of Nos. I & 2. That the 3rd and 4th signs are also variants is virtually certain from their shape. That the 6th and 7th are either variants of the above or at least allied is implied by the sequences of Nos. 5, 6, 7. That the 10th sign is a variant of the 5th and 6th is suggested by the sequence . The 8th and 9th are clearly variants of each other. The last sign has a sequence in common with the 6th. Regarding the 7th we can only note its shape and its initial position in favour of regarding it as a variant of the group 5-11 (cf. Col.IV). On the analogy of Tables I, II and VI we may accept this group as variants. On the same analogy we should be inclined to treat group 1-4 not as a variant of group 5-11 but as an allied syllable, or <u>gunu</u> variety.

Analysis of Table V.

The principle reason for including the signs in Col. IV under one Table is their shape. With regard to the 2nd and 3rd we have also the community of the suffixed . The similarity of shape between these two signs is also most marked. The additional stroke in the second of them recalls the addition of strokes to the base form of the sign in Tables I, II, IV, VI, and suggests that here also we have the modification of a sign to serve as the symbol of an allied sound. The 4th sign in Col. IV is sufficiently like the 2nd and 3rd signs, and sufficiently unlike any other sign in our texts to warrant its inclusion in the Table. We may take it provisionally then as a simple variant of the 2nd sign.[1] The inclusion of the first sign has less to support it as regards shape, and the sign would not have been included at all but for the fact that it is preceded by . This sign belongs to a comparatively rare group (Table LXXI) and the fact that it is twice found preceding suggested the possibility that (which was otherwise unconnectable with any sign) might be a later and simplified or cursive form of .

Analysis of Table VII.

It is clear from the sequences that the signs in Col. IV of this Table are simple variants, except the last three. With regard to the sign , we may compare No. 63 with Nos. 26, 27; No. 64 with No. 38; No. 65 with No. 58 (there is reason to think that  is phonetically allied to  , see analysis of Table XLIII) No. 66 with No. 55. But the similarity of

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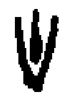
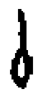
1. Or as a <u>gunu</u> variant, from intermediary forms

sequences is not very close. In particular it is to be noted that this sign is not followed by ||| , and does not appear as initial or quasi-initial, whereas , are normally initial or quasi-initial (i.e. preceded by signs which are either whole words or prefixes. It will be shown later that all the members of the fish group, and are in the nature of prefixes). The sign is then related to, but not identical with, (of which is a less complete and probably later form). Now it will be observed that graphically the respect in which differs from  is precisely in the addition of two short strokes. In view of what has been said in the analysis of the previous tables we may safely assume that here also we have a case of a syllabic sign being modified to represent a phonetically cognate syllable. We shall also on the same grounds take the penultimate sign in Col. IV as a simple variant of . Of course the variation may be of the <u>gunu</u> order and the syllable still be phonetically allied. The last sign may be a phonetic compound in view of its shape and the fact that it is initial. For if be the initial part of the compound we should expect to find it initial in the text, as is frequently initial or quasi-initial. That is the initial part of the compound we may assume, partly because it appears above the other portion, and partly on the analogy of Brahmi and its derivative Nagari which place the second element in a compound either after or below the first part, (an example of the second part placed after the first has already been noticed in Proto-Indian in the compound). On the other hand if we take our sign as a compound it is difficult to identify the second element. Is it ? (see T. LVIII. Col. IV. last two signs). This seems the most probable explanation. If we regard it not as a compound but as a single sign it is to be observed that there

is no sign in Sumerian or Egyptian with which it may be compared. There is of course the sign given as No. T. 24 page 500 of Gardiner's Egyptian Grammar, but this does not contain the element  which would appear to be an essential part of the sign. I shall assume therefore provisionally that the sign is a compound of and .[1]

Analysis of Table VIII.

The sign in Col. IV appears to be distinct. Morphographically its nearest neighbour is . But an examination of the sequences in Tables VIII and XV make it appear most unlikely that this resemblance is other than coincidental.

Analysis of Table IX.

It is morphographically improbable that the two signs in Col. IV are other than simple variants. Again there is nothing to connect them with any other sign. If their sequences showed any striking resemblance to the group (which like this group seems to represent a plant of sorts) one might admit the possibility of a causal connective; but they do not.

Analysis of Table X.

The signs in Col. IV are clearly all variants. They differ only as regards the shape of the enclosed element, and the varieties of this are precisely the same as the varieties of that element when it appears alone (see Table XI) where it can be shown that they are all variants (see analysis of Table XI). That the various signs in Col. IV of Table X are all variants is also evident from the sequences.

[1] Alternatively it may be explained as [illegible]

With regard to the function of this sign, we shall observe that (a) it is frequently initial, (b) it is never final, (c) it normally precedes signs that can be shown to be prefixes (like the fish-group) or sign-groups that are in themselves whole words; e.g. in Nos. 9, 11, 34-36, 39, 46, 50. It is clearly then frequently a prefix[1], probably in every case except Nos. 41-45, when it appears to be the second element in the word ⓨᑭ

With regard to the fact that ⓨ is never found final while ˈⓨˈ is so found and the inferences to be drawn therefrom, see analysis of Table XXXI. It has been noted that this sign contains two elements O and Y , which elements are also found independent in our script. (See Tables XI and XXVI). Are we then to consider it as a compound phonogram? In this case it must be either Y – O or O – Y . Now if it is Y – O it is strange that it is never final. If it is O – Y it is strange that it is never preceded by one of the numeral signs which so commonly precede Y
I conclude that it is not a compound phonogram but (in origin) a compound ideogram as in Sumerian . (See Appendix II p. 6 No. 99). The sign then represents a garden - a tree in an enclosure.[2] It is not likely however that it retained this sense in our texts. It is difficult to see how a garden or cattlepen could be utilised as a prefixed element in the formation of proper names, and a very common element withal. No! In our texts it is doubtless used as a simple phonogram, homophonous no doubt with the original ideogrammatic value, or an abbreviation of the latter, but unconnected with it in

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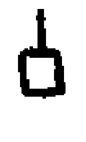
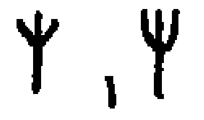
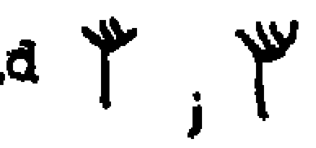
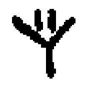
1. By prefix is always to be understood "prefixed element in the system of name-formation" unless otherwise indicated.

2. The motif of the Sumerian parallel is however different. A closer approximation in motif is the Sumerian sign No. 20, p. 1 . This means 'cattlepen' which may be the original ideographic meaning of the Proto-Indian sign also.

meaning. This feature probably holds good of the large majority of the signs in our texts. They were doubtless all formerly used ideographically, either in Proto-Indian or in the scripts where they originated, but have by the period of our Texts come to be used as mere phonograms. Whether when borrowed (in the case of those that bear evidence of borrowing) they were borrowed as idograms or phonograms, must be decided in each case on the evidence of the comparative Tables. Where a Proto-Indian sign can be identified both with an Egyptian or Sumerian sign and with a sign in Cypriote, Brahmi, or Sabaean, and the phonetic values of the former and latter coincide, we may infer that Proto-Indian borrowed the sign as a phonogram. When this is not the case we may infer that the Proto-Indians borrowed the sign as an ideogram, utilised it to represent a word in their own tongue of the same meaning, but of course phonetically different, and passed it on with their own phonetic value, which would be quite independent of its phonetic value in the script of origin.

Analysis of Table XI.

It is clear from the sequences that all the signs in Col. IV except the last two are variants. The characteristics of this sign are (1) that it is normally final or quasi-final, (2) that it is normally preceded either by a numeral sign or by  . On the significance of the numeral signs see Analysis of Table XXXI. The sign is presumably a tree. It has two characteristic forms  wherein the position of the branches relative to the trunk (or stem, if we consider it a plant rather than a tree) is symmetrical, and  where it is not. This difference in morphography is marked, and

seems to refer back to the (probable) Proto-Elamitic origin of the sign.[1] If we examine Del. au Perse XVII. Pl. III, No. 17, we shall see three kinds of tree or plant. Two of them have the upper portion thus , and are differentiated only by the number and position of their lower leaves or branches. They are evidently varieties of the same species[2], since in the total they are enumerated together. The third kind has the upper portion symmetrical thus  , and is enumerated separately. It is virtually certain that the two species had separate names in Proto-Elamite. Yet their forms in Proto-Indian serve clearly to represent one single word:- are simple graphic variants? The most probable explanation is that the signs were taken over into Proto-Indian as ideograms: that in the Indus valley people did not, in the spoken tongue, differentiate between the two species of plant, and therefore did not differentiate in their script, but used the two signs indiscriminately to represent the word which, for them, covered the two species. From this it follows that at least one, probably many, and possibly all of the Proto-Indian signs borrowed or descended from Proto-Elamite, or collaterally descended with Proto-Elamite from a common ancestor, had at the moment of their borrowing, descent, or severance (according to the hypothesis we adopt) ideographic rather than phonetic import, and were on their first appearance in Proto-Indian ideograms and not phonograms. With regard to the last signs in Col. IV, they are clearly variants of one another since they differ only in the curvature of the element. But they are clearly not variants of the remainder of the group, since (a) the sequences found with the remainder

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1. The Proto-Elamitic origin is strongly suggested by the fact that the varieties of this sign in Col. IV are precisely the varieties of the sign (signs ?) in Proto-Elamitic. See the Comparative Table.

2. Op. cit. p. 3.

are conspicuously absent, (b) the sequences found with them are found nowhere else in the Table. In particular Y is one of the very few signs of common occurrence that are nowhere found preceded by || . And this is not surprising since what follows || is always the beginning of a word[1], whereas Y is normally (perhaps invariably) the final element in a word. That it is this rather than a general suffix is indicated by the fact that it is found after relatively few sounds, and relatively many times after each of them. We may here anticipate the discussion on the numerals to remark that Y preceded by a numeral probably indicates such a word as the Latin secundus, tertius, sextus etc., and like the Latin names may be used either alone as in Nos. 2, 32, 33, 36, 46, 79, 86, 96, 101, or in combination with another word like Octavius Caesar. It will be noted that in all but two cases Nos. 28 and 11 it follows the word it qualifies, from which we may provisionally assume that in Proto-Indian the adjective normally follows the noun. It would seem also that the syllable Y is the ordinal suffix, or capable of serving as such, like Sumerian -kam. From the case of No. 11 it would appear that the word for 'eight' in Proto-Indian was phonetically of such a kind as to coalesce with this ordinal suffix to form one syllable, e.g. ba-ra = bra.[2] Returning to the last two signs of Col. IV in Table XI, it is probable that they represent a syllable allied to Y . The form of modification ^ is however peculiar. It seems to be different from the form of modification by the addition of strokes. It will be discussed later.

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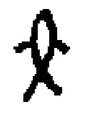
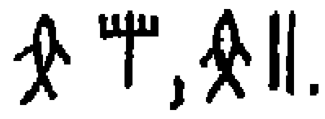
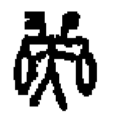
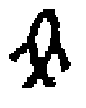
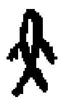
1. See analysis of Tables XXX and XXIX.

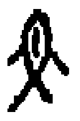
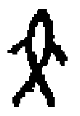
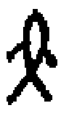
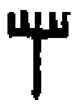
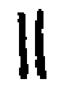
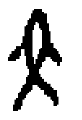
2. It is of course possible that this and other compound phonograms may be integral compounds in which both syllables preserve their full value as in Sumerian. (See Appendix pp.). But we have shown that in one case at least, YW there is a strong probability of elision of the final vowel of the first syllable.

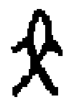
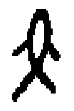
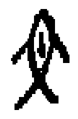
Analysis of Table XII.

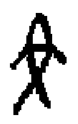
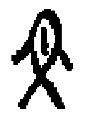
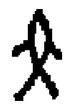
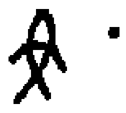
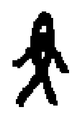
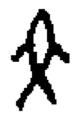
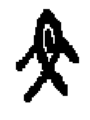
The sequences show that all the signs in Col. IV are simple variants. The sign is always final except in No. 20. It is clearly not a general suffix but the second element in a word, except in Nos. 17-20 where it may be an independent word in itself. The internal strokes are of the gunu order and do not affect the phonetic value.

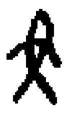
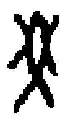
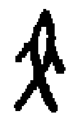
Analysis of Table XIII.

That the first two signs in Col. IV are identical with the third sign is suggested by a comparison of text 1 with 8, 88-92; and 2 with 3-22. They are probably late and simplified forms of . With regard to  , the form itself and its Sumerian and Egyptian resembling forms, suggest a fish. With regard to its function we may note first that it appears to be the second element in certain words, notably . Secondly we shall note that in a large number of contexts it appears to be a prefix, appearing either as initial, 66, 78, 88, 89, 96, 97, 101, 102, 112, or quasi-initial after other prefixes or whole words, 23, 33, 34, 41, 90-95, 99, 100; and usually followed by sign groups which are whole words: 26, 25, 64, 77-79, 88-94, or by the signs which are commonly suffixed; passim, 61-63,  86, 87. From this it is clear that  frequently appears as a word complete in itself which is often used before proper names, see especially H. 145 and M. 209 where the words which follow  in 88 and 94 respectively are found as complete texts.

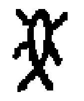
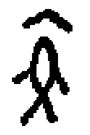
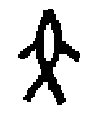
 unlike  does not appear to be intimately connected with any sign, as  is with  and  But apart from this it is surprisingly like  . Almost

every one of the signs both following and preceding it are also found with  used as a prefix. When to this fact is added the marked graphic similarity it is difficult to avoid the conclusion that  and  are allied syllables representing dialectal variations of one and the same word. That the variation is dialectal rather than euphonic may be inferred from a comparison of 41 with 120, and 34 with 119, wherein respectively antecedents and sequents are identical.

 appears from its shape, its position in the texts in which it occurs, and the sequences in which it is found to be exactly parallel to . They are probably both formed from  by the addition of an internal stroke. But they are clearly not identical in view of the fact that both varieties are found on the same text (see Nos. 126, 127, 130). Phonetically  would appear to be more closely allied to  than to  since both appear in sequence with . This as we shall see is characteristic of every sign in Col. IV except and the last two signs (which are independent of the 'fish' group). Like , appears to be independent of the signs that precede and follow it; it is a separate word, a prefixed element, not an initial of final element in words.

appears from its shape, position and sequences to be allied in sound and function to and . All that has been said regarding them may be applied to it. That it is not however identical with either of them may be inferred (1) from its being found on the same texts (2) from the fact that it figures as prefix to the group to the exclusion of all other members of the fish group except for a single instance where  is prefixed. (See Table I, 50-56) It appears to be derived from  by the addition of to represent an allied sound which, as a word, is a dialectal

variant of tre word which could equally be written with any member of the fish group.

To  may be applied all that has been said regarding  in the matter of function[1] and phonetic value. It appears to be a modification of  by the addition of \/ It figures as prefix to the group to the exclusion of every other member of the fish group. Again it constantly appears on the same texts as other members. Thus its individuality is clearly established. At the same time its shape, position, and contexts leave no doubt regarding its close alliance both in meaning and sound with the other members. We thus conclude that are all distinct, yet are all used to write one and the same word. In what then does the variability of this word consist? Certainly not in ideography. A scribe might, as in Sumerian, occasionally represent the same word by different ideograms, but he could not do it on principle; nor will an ideographic explanation account for the marked preference for particular forms in particular contexts. We are driven to admit that the variation is phonetic. Again this variation is not on grounds of euphony. The sequences show continually different varieties of the 'fish' sign between identical antecedents and sequents. The most striking illustration of this is afforded by Table XII. The variation must then be dialectal - varying from speaker to speaker, or village to village, or period to period. The next point to consider is the frequency with which two varieties of the fish sign occur together. In all these cases[1] the signs and sequences preceding or following the two fishes can be shown to be independent words. The two fishes may be assumed then to constitute a single word in every

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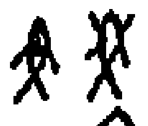
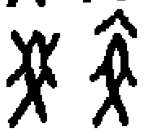
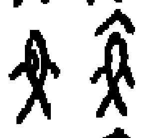
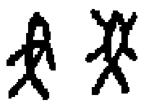
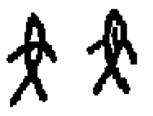
1. Excluding the combination and which have been shown to be separate words.

case. The question is whether all the combinations represent one and the same word with dialectal phonetic variations, or whether each variety of combination represents a different word. We should incline to the latter opinion, were it not for certain remarkable uniformities, viz:- (1)

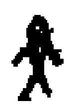
	occurs 4 times			occurs 3 times	
	" 3 "			" 2 "	
	" 3 "			" 3 "	
	" 2 "				
	" 5 "				
	" 7 "		no other varieties of		
	" 2 "		the combination are found.		

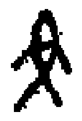
It is curious if all these words are different that they should occur roughly the same number of times.

(2) It is curious if they are different words that they should occur so often in the same positions in the text, suggesting that their function in name formation is similar.

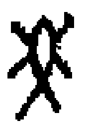
(3) It is strangest of all that they should be found in the same sequences. See especially M. 235 with H. 238; M. 318, 317, 485 with M. 139 and M. 507 and M. 453; M. 395 with M.388 and H. 136 and I 26; M. 318 with M. 260, 344 and M. 238; M. 183 with H. 113 and M. 475; M. 104 with H. 179, M. 501; M. 54, 317 with H. 179; M. 490 with M. 335 and M. 54.

(4) It is also curious that each variety of the modified fish should appear in these compounds roughly in same number of times in proportion to its total appearances. Thus

 appears in these double fish compounds 7 times in a total of 19 occurrences.

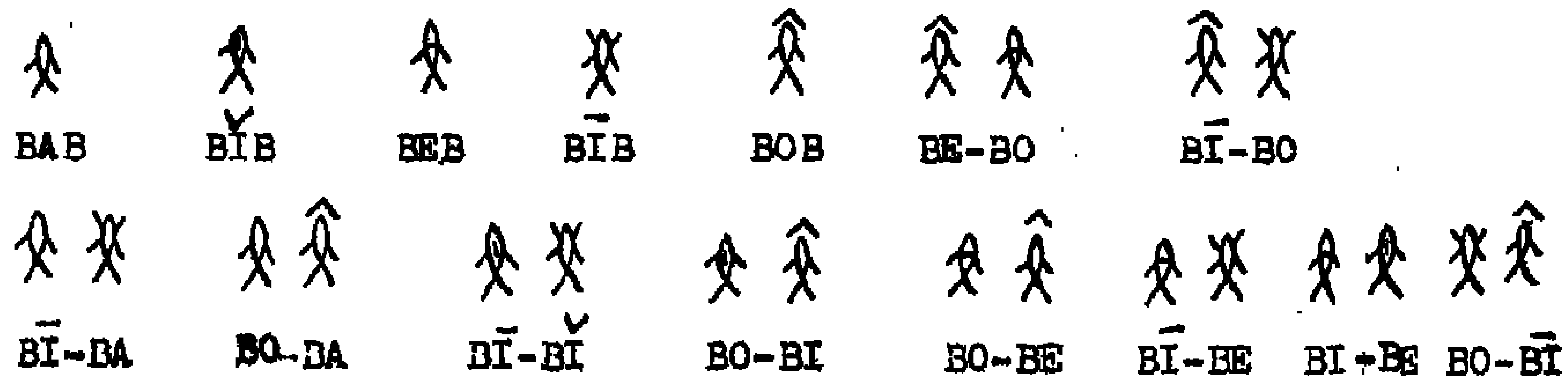
 " " " " " " 17 " in a total of 47 occurrences.

" " " " " " 18 " in a total of 66 occurrences.

 " " " " " " 19 " in a total of 64 occurrences.

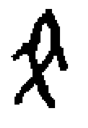
I think then that the evidence is cumulative and forces us to the conclusion that in all these varieties of the 'double-fish' group we have but one word with varieties of pronunciation that are dialectal or euphonic or both.

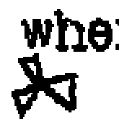
We now note another peculiarity. This double-fish word which like the single-fish word shows wide dialectal variations is found in the same relative position in the texts and in the same sequences as the single-fish word. This is best illustrated by Table XII, where we see the word preceded 3 times by the double-fish word and 6 times by the single-fish word. And every time the fish or double-fish is initial (or quasi-initial). Similarly we find suffixed to the single-fish word 16, to the double 6 times; compare also the occurrences of the two words with , . In fact among the 33 signs which are found immediately before or after the double-fish word the only ones that are not found in the same relation with the single-fish word are , , , , and . The remainder are not only found, but found repeatedly. The evidence then is very strong that the single-fish word and double-fish word are identical. In fact the latter may be regarded as a spelling out of the former. We have then the following ways of writing this word, the phonetic relationship of which I have endeavoured to suggest by transliteration. The consonant 'b' is of course selected arbitrarily; the allocation of the given vowels to any particular variety of 'fish' is believed to be exact, for reasons that will be discussed later.



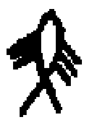
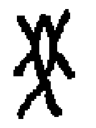
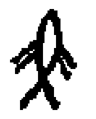
It will be observed that the same two varieties of fish are never found together in our Texts. This would seem to suggest that when the Proto-Indian formed a carative or a 'jangle' by the reduplication of the root, he avoided repeating the same vowel. The same tendency is observable in many languages, cf. English 'baby', French bebé, Italian 'bambino'.

It is also clear, if our inferences are correct, that at least some of the signs in our script stand for syllables that are closed at both ends consonant-vowel-consonant:- what have been called 'compound syllables'.

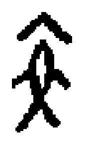
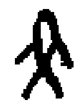
Is it possible from our texts to discover the meaning of this word which in one or other of its varieties occurs hundreds of times? We may note first of all that no member of the fish group is ever found final except  [1], and that only in sequences where it may well form the second element in a word. Nos. 81, 84, 85. Secondly the fish word is often found initial or quasi-initial. Thirdly it sometimes separates two sign groups which are clearly words, and probably names, in themselves, e.g., Nos. 73, 128, 156, 162, 166, 168, 209, 210, 211, 235, 245, 284, 285, 255, 257, 258. To these may be added all those cases where the fish word is preceded by a sequence ending in " . But these sequences although probably complete words are often not names of men but rather in the nature of a dedicatory formula (see analysis of Table XXX). Be that as it may these three considerations lead me to the conclusion that the fish-word may very possibly be the Proto-Indian word for 'son'. In this case the word 'son' comes before the name of the father as in Sumerian and Auzanite. It is worthy of note that where a modified form of precedes a member of the fish group, the nature of the modification, whether by one, two, or three strokes, seems to depend on the variety of the

1. And in No. 297: where also it is probably an element in a word, as  is nowhere else followed by any 'fish' sign.

fish sign or vice versa. See Nos. 128, 156, 209-211; 266, 285, 286. We have seen that the varieties of the fish sign are phonetic varieties, and that etc. are phonetic modifications of . May we now assume that the number of strokes by which the is modified is not immaterial but indicates different phonetic varieties? If so it would appear that the law of vowel harmony was rigorously observed in Proto-Indian speech[1] and meticulously recorded in the script. This has its parallel in Sumerian also. On the whole I think we cannot reject the evidence of these concomitant variations and must assume that represent kĭ, kī, kui respectively.[2]

 The last sign in Col.IV is possibly a graphic variant of  via a lost intermediate form . It will be observed that the variety of preceding is . Or it may be an independent sign. It may be connected with (see Table XIV).

Analysis of Table XIV.

In view of the fact that and  are clearly modifications of and  respectively we should expect

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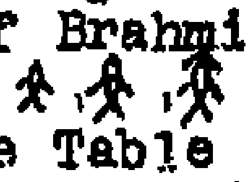
1. At least in the case of the liquid vowels. The simple form which is probably articulated with a (inherent in the base form of Brahmi and Ethiopic) seems more stable, being found before  and , and after all sorts of signs (see Table I). It is perhaps worth remarking here that if (as I think it is arguable) the Brahmi, Sabaean and Ethiopic scripts are all derived from Proto-Indian, and if the Ethiopians were allied in race to the Ethiopic Gedrosians (?) of the Indus valley, then the extraordinary fluidity in the Ethiopic liquid vowels, may have its explanation in the similar fluidity of these vowels in the Proto-Indian parent. By this I do not wish to suggest linguistic descent, but merely that if there was racial descent or affinity we may expect the phonetic peculiarities of the parent (which are determined by the physical conformation of the organs of speech) to be manifest in the descendant even when speaking a different tongue.

2. See analysis of Tables XXIX and XXXVIII.

to find a form as the base form of the sign in Col. IV. It is not however found. It almost certainly existed. Perhaps it dropped out, as many of the Sumerian signs of the Jemdet Nass period dropped out, its place being taken by another symbol with the same phonetic value. It is not improbable that in (see above) we have a modification of this lost base-form.[1] For it is significant that is preceded by a solitary and forms part of a word ending with " . Neither of these features can be found with any other modified form of . It is probable then that it is not a modified form of which leaves the way clear for considering it a modification of . That is all we can say at present.

Analysis of Table XV.

All the signs in Col. IV are either variants or allied. This is indicated (a) by the shape (b) by the position, nearly always final, (c) by the sequences Nos. 3-6, 15, 37, 38; and , Nos. 2, 28, 29, 43-48. These may be regarded as the key sequences of this Table. They will help us to decide whether the various signs in Col. IV are simple variants or allied only.

On morphographic grounds we may divide the signs in Col.IV into two groups; the first eight, ending with Text No. 20: and the last seven, Texts No. 22 to 52, 21 is of course indeterminate. Now it will be observed that while the sequence occurs five times in the first group, it occurs twice only with the second, and while the sequence occurs once only with the first group it occurs 8 times with the second. Again and occur twice, thrice with the second

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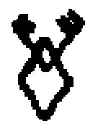
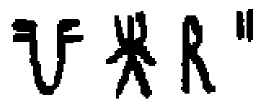
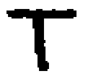
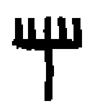
1. For the graphic nature of the modification , cf. , , , (Table V). (Tables LIII, XCVI).

group and not at all with the first. Conversely appears twice with the first group and not with the second. We may infer then that the two groups represent two sounds allied but not identical. It will be noticed that the respect in which they differ is the addition of short strokes. In view of what we have seen in the analysis of the previous Tables, we may be certain that this indicates a modification of the vowel of the syllable. The shape of the sign in No. 22 is peculiar. The vertical foundations or base for the horizontal strokes has been drawn, but the strokes themselves omitted. This is probably an error on the scribe's part or my own in copying.[1] The additional element may be compared with the same in the signs , . It probably indicates that the syllable is to be articulated with the vowel ū.

Analysis of Table XVI.

From the evidence of their shape and sequences there can be no doubt that the 2nd, 4th and 5th signs in Col. IV are identical. Again the evidence of the sequence  is so powerful that we must conclude that the third sign  which has no neighbour in shape among the other signs of the Proto-Indian script, is an abbreviated or simplified, probably later form of  This view is strengthened by the shape of the last sign in the text (No. 12) which, as we have urged in the analysis of Table I, must be regarded as a late form of the sign . It is interesting to observe that both these

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1. It is to be regretted that in the case of the majority of the inscriptions I have had no opportunity of checking my autograph copies with photographs of seal impressions. I requested that such photographs might be supplied to me by the Archaeological Department of the Government of India, but up to the present they have not been received.

late forms approximate to the shape of the corresponding signs in Brahmi. (See comparative Morphographic Table).

With regard to the first sign in Col. IV the evidence of the sequences is negative, and this sign is probably independent. As it occurs only once it may well be an ideogram rather than a phonogram. The sign in text 41 may not be a sign at all but a decorative device. On the other hand it may be the fuller and more complete form of . As it occurs alone there is no help to be derived from the evidence of sequences. If it is a sign, it is probably an early form of . The shape of this sign and its variants , is exactly parallelled in Sumerian and[1] Proto-Elamitic; and in those scripts also we have no morphographic clue as to its original ideographic significance. It is hardly likely to be a man's hand, as we already know the sign for this in Sumerian, and it was quite distinct from . It is possible that is a compound of + . The fact that the sign appears in the upper right-hand corner of the seal (which below contains the design of a many-headed beast) makes it probable that it is to be regarded as script and not a decorative device.[2]

The signs in Col. IV that accompany Text 5 Nos. 42-48 are clearly a doubled form of . They are simple variants of one another. Their significance is argued in the discussion on Plurals p. 74.

Analysis of Table XVII.

The shape of the first three signs in Col. IV and the evidence of the sequences makes it reasonably certain that

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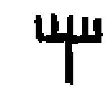
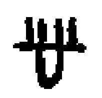
1. See Miscellaneous Table, C 11.

2 On the whole, combining the evidence of Plate I No 18c, the signs , (J. XLIX) and this table, I opine that the sign represents a table of offerings, and is of Egyptian origin. It will follow as a corollary that the Sumerian and Proto-Elamitic forms are Egyptian origin also.

these signs are simple variants of one another. The first is probably nearest to the original pictogram which doubtless portrayed a marsh,[1] (cf. our own conventional way of indicating a marsh in map-drawing). The key sequence in this Table is .

Analysis of Table XVIII.

The sign in Col. IV seems to be independent. Its only near neighbours in shape are  and  . The resemblance is not really close in either case, while the evidence of any connection in the sequences is distinctly negative.

Analysis of Table XIX.

The two signs in Col. IV, opposite texts 23, 24, are perhaps independent signs; but perhaps allied, since there is a resemblance in shape though not in sequences. The remaining signs in Col. IV of the whole Table are undoubtedly simple variants. The form in text No. 8 should be regarded as original, showing the tail, back, two ears and hind legs of an animal. The shape of the ears suggests the jackal. The ears seem to have undergone progressive conventionalisation and suppression until in text No. 14 they disappear entirely. We may compare the same phenomenon in Table LIX.

Analysis of Table XX.

The first two signs in Col. IV may be taken as variants in view of their virtual identity in shape. They do not appear

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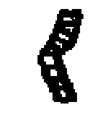
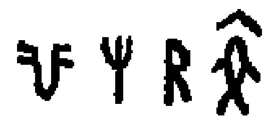
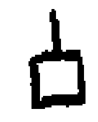
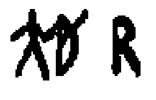
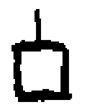
1. The portion 0 is probably the bulbous root of the marsh plant - indicates the ground line and W the visible portion. Alternatively, the sign may be borrowed from the Egyptian sign for a papyrus clump.

to be connected with the signs in any other Table. The stroke ′ makes one suspect that the base form is  The first two signs will then be the base form modified by the vowel ü, the third sign will be the same modified by the vowel o.

Analysis of Table XXI.

The first and third signs in Col. IV may be taken as identical. The second sign is shown to be a mere graphic variant by its place in the sequence  which is the key sequence of the Table. It is interesting as approximating exactly to the Sabaean form, and may therefore be regarded as the ultimate form of the sign in Proto-Indian.

The signs in texts 43-54 differ from  only in the number of interior lines, and may therefore be regarded as allied. If No. 42 is correctly copied this inference would be also supported by the sequence  . But the signs on the coins are so faint that it is possible that the sign in No. 42 may also have contained the interior lines. From the evidence of the sequences, notably the absence of the key sequence it is certain that the signs with interior lines are not mere graphic variants of  . It is not likely that this modification by interior lines corresponds to the phonetic modification that we have observed in the case of signs modified by the addition of short strokes, firstly because in this case the strokes are not short, and secondly because in the case of text 46 their number is too great. The modification appears to be rather analogous to the modification of Sumerian signs to form gunu signs. In the latter case the number of added strokes is immaterial. We may infer the same here.

The last sign in Col. IV is probably an independent sign.

Analysis of Table XXII.

The sign in Col. IV appears to be independent both of those in Table XXI and those in Table XXIII. It may possibly however be allied to the last sign in Table XXI.

Analysis of Table XXIII.

The key sequence ΔΔΔ R shows that all the signs in Col.IV are simple variants. The most complete and probably earliest form is the last, Text No. 8.

Analysis of Table XXIV.

Both the shape and position of ◇ and ◊ in the texts and the fact that each is normally followed by " leads us to infer that they are graphic variants of one and the same sign. The forms of this sign appearing in Nos. 47, 48 are probably defective. It is not likely that they are other than variants. Cf. 46 with all the texts containing " ◊ and also with No. 1; 47 with 61; in the case of 49 the three interior strokes were lightly incised on the original and may have been accidental scratches.

No. 50 would appear to be a modification of ◇ by prolonging the element v to provide a base for adding short strokes at right angles. Compare the modification of the base form in Table XV.

The sign ◈ is probably pictographically independent[1]. It is perhaps an ideogram for 'heaven'; the circle representing the sky and the interior lines a star. Or it may be a wheel. Functionally it resembles ◊, ◇ . It is not likely however

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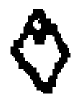
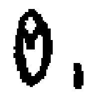
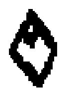
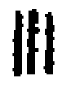
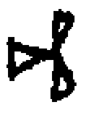
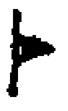
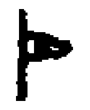
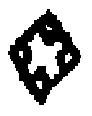
1. It is certainly not identical with ◊, ◇ since it occurs on the same Text, M. 139, whereas ◊, ◇ are <u>never</u> found on the same Text.

that it is phonetically allied. At least no such conclusion could be based on any assumption of euphonic variation, since like it is initial, and like them followed by " It is probably then quite unconnected, like and which also seem functionally to correspond. We must now endeavour to ascertain this function since so many of our texts begin with . Now it will appear from an analysis of the sequences Nos. 8-43, 46, 51-91, 102, 104-127, that " marks a halt in the sense. What follows is quite independent of what precedes, and constitutes a complete word or words in <u>every</u> case; words which are sometimes found as complete texts in themselves; while no less than fifty are found as initial in other texts. If we turn to the analysis of Table XXX we shall find that there also what follows " is invariably a name complete in itself.

" etc. is therefore not a prefixed element in certain proper names but an element unconnected with proper names yet regularly placed before proper names on seals. What sort of an element is this? If we may be guided by the Babylonian analogy we may assume that this element was a dedicatory formula. "To the god X." Compare also the Herat seal, geographically so near to the site of the Proto-Indian civilisation. (<u>Antiquity</u> 1927. p. 206). and may then provisionally be assumed to be names of deities and " the dative suffix. When we have several signs before " we may have as well as divine names some phrase like 'for his life'. Now it will be observed that appear in the same position in the texts; that the first occurs 24 times, the second 10 times, the third 7 times. Furthermore a comparison of Nos. 104 and 128; 107 and 129; 105 and 136; 106 and 138; etc. shows that the selection of any one of the three was not made on grounds of euphonic harmony with the following word. I conclude that the dative suffix was a word

subject to phonetic variation. That its normal value was " and that this value was invariable after syllables whose vowel was a, such as , but was variable after a syllable containing a liquid vowel, as, I suggest, was the case with The suffix would still normally be " which I will take to have the value ī, but might be ' (which we will assume to be the vowel ĭ) or '/ (which we will assume to be the vowel ĭ pronounced with a labial glide - ui or wi). Let = AN. Let = BIL. Then 'To AN' is always AN-Ī. 'To BIL' is normally BIL-Ī, but optionally BIL-Ĭ and BIL-UI. The use of '/ as a dative suffix does not appear to be confined to '/ : see analysis of Table XL. The reason for taking ", ', '/ to be simple vowel sounds is based on an analysis of Table XXIX, which show ' to be the vowel i or u, and probably the former, taken in conjunction with the evidence already noted of ' and " representing vowel modifications when inserted in and elsewhere. If ' is a vowel there is strong reason to believe that " is also a vowel. And if ' and " which can both stand as the dative suffix, are vowels, there is reason to suppose that '/ which is also a form of the dative suffix, is also a vowel.

We have now to consider Nos. 5-7, 93-97, 146-148. In these cases , , are initial and there is no ground for assuming that their function is other than when followed by " . What then has become of the dative suffix? I take it that in these cases the sign following , , began with a vowel, and that in consequence the dative suffix was absorbed or elided; in other words that , , ,  are closed syllables. In the case of  this can be demonstrated (See analysis of Table XXIX).

The last two signs of Col. IV are clearly compounds of  and and variants of one another. The form as

simplification of is not perhaps surprising, but it is interesting as giving us an exact approximation to the Phoenician.

Analysis of Table XXV.

The resemblance between the two signs is probably deceptive as there is marked dissimilarity in the sequences except in the solitary case of the sequence (Nos. 6 and 7).

Analysis of Table XXVI.

Although is a variant of , does not appear to have any connection with , their sequences being entirely different. This is not necessarily a matter of surprise, as there is no reason to assume that and , or and were in any way connected as to their pictographic origin (see pictographic Table). And we have noted above how the similarity between the designs of the signs in Col. IV of Table XXV is purely coincidental.

The sign would seem to be connected with in view of the occurrence of the sequence which is found nowhere else. In that case we may probably assume that the groups in Col. IV Texts 20-24 are modifications of by the addition of strokes corresponding to a modification of the vowel of the syllable to ē. The group appearing in texts 34-38 may be the compound . The sign in Col. IV against Nos. 40-41 is probably of independent pictorial origin.

may be + ; may be + (cf. Table LXIV). is clearly + ; is + . With regard to the signs in Nos.47-56 is almost certainly equal to which makes us suspect that in this form of bracket we have really a splitting of the sign to make room

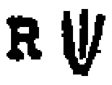
for enclosing a sign with which [sign] is to be compounded. In the case of Nos. 54, 55, the compounds would appear to be 'integral' (i.e. each syllable pronounced fully without elision or contraction).

The signs [sign] and ( ) are then identical. We may therefore assume that [sign], [sign] and ([sign] are also identical. The fact that [sign] is like [sign] liable to be compounded with an inserted 'fish' suggests that it is a phonetically allied syllable, and that in [sign], [sign] we have really one word [sign] [sign] differenly pronounced. The fact that [sign] is found with the same modifying element [sign] as is found with [sign], makes us suspect that [sign] and [sign] are allied syllables. And from what will be said concerning [sign] in the analysis of Table XXIX together with what we have already said about it we may infer that [sign] is [sign] with the substitution of ĭ for ă as its vowel element.

I would then conclude that the form [sign] is original ~~and as~~, that [sign] is the syllable articulated with ĭ, [sign] with ē, [sign] is quite independent of [sign]. [sign] is [sign] articulated with ŭ, [sign] is the same articulated with ū.

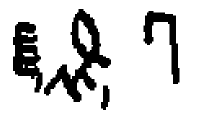
[sign] is a modifying phonetic element, not a mere variant. This is clear from text b0, where in both [sign] and [sign] appear. This element is also found with [sign]. It is not to be confused, phonetically at least, with the element similar in shape in the signs [sign], [sign]. These signs are animal signs, and the element [sign] is in them pictographic, indicating an ear [sign] while [sign] probably indicates the jaw. Being merely pictographic their presence or absence is immaterial to the ideogram which consequently shows much variety, appearing either with 2 ears, 1 ear, 2 jaws, 1 jaw, 1 ear & 1 jaw — or nothing! See tables LIX and XIX.

Analysis of Table XXVII.

The original pictogram would appear to have been heaven, plus a covering, plus the shadow of darkness? = Night? The earliest form would appear to be the second sign in Col. IV. Of this the first sign must be a cursive form, with the shadow detached (unless this is a phonetic modification of the second by the addition of ^). The third, fourth, and sixth signs are easily admissible as graphic modifications of the second. In the fifth the element has almost completely disappeared. In the seventh it has been reduced to , in the eighth and ninth it has entirely disappeared. In the tenth and eleventh the shadow is reduced to one stroke and joined up with the rest of the sign. In the penultimate sign it is joined to the extremities of the body of the sign to form loops, In the two preceding (Texts 15, 16) the shadow has disappeared altogether and of all the original sign only the covering pall remains. Of course in No. 10 the occurrence of after may be a coincidence. If so the position of the sign in Nos. 11-14 would suggest that this particular sign has no connection with the rest of the group. Regarding the remainder discussed above the evidence of the sequences seems inexorable despite the remarkable graphic modifications. The latter however are susceptible, as we have endeavoured to show, of a progressive explanation. The key to the identity of these signs is partly their position as finals, but particularly as finals after the . There are so few single signs suffixed to . Again we have the sequences R and R  .

The last sign may be a compound of see Table XI).

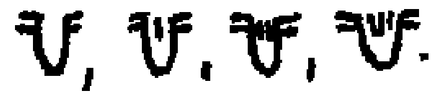
Analysis of Table XXVIII.

Probably variants. The first sign is obviously the second reversed. But it is unlikely that that alters its significance, as throughout these texts reversed and normal forms of signs seem to be identical. See Tables of  (LVIII, LXXIV, LXXXIV).

Analysis of Table XXIX.

It will be noted that the sign ' sometimes occurs at the top of the line, sometimes towards the middle. But it is clear from the sequences that this is immaterial. The same is true of " (Table XXX) and many of the signs in Table XXXI. It will next be observed that this sign is often found between sign groups that are whole words and even whole names, the elements before and after ' being found as complete texts. Cf. No. 23 with M. 286 and M. 184; No. 26 with M. 297, 298 and H. 146, M. 209.

Now what sort of an element is this which serves to link together (or separate) words, names, and even texts. Our first answer would be that it is a mark of punctuation as in Phoenician, and comparable to the Virama in the later Indian scripts. But the evidence of Nos. 10, 31 and 19 is against this explanation. Here ' is final. If we assume that here also it is a mark of punctuation used to indicate the termination of a text, how do we account for the fact that only three texts out of over 750 are so terminated? It seems certain that in these texts it has a phonetic value. But if in these, then also in all the other texts where or are found. Are we then to conclude that ' had two distinct values, the one phonetic and the other punctuative? In view of the ambiguity that this would introduce into the script, and the fact that elsewhere the script provides so

scrupulously for the exact rendering of phonetic values (e.g. ) this would appear most unlikely, and we should only be driven to such a conclusion as the last resort. A far more probable explanation would be to regard ' as the vowel i or u, which when placed after a word ending in and before a word beginning in a vowel serves to break the hiatus, and is pronounced as the semivowel y or w. In this connection it may be pertinent to recall the principle obtaining in certain of the Munda languages of avoiding a hiatus by the insertion of a semivowel. The Munda group is probably the oldest group of languages in India, and there are evidences of it in Brahui, which speech today covers part of the area of the Proto-Indian ambit. In favour of regarding ' as a simple vowel there is also the analogy of , and the other signs noticed in the analysis of earlier tables, where the addition of the stroke ' represents a modification of the vowel of the syllable. Again it is significant that of the cases where ' may be taken as bridging a hiatus between words; nos. 5, 7, 23, 26, 28, 33,[1] ' is preceded by or , which we know to be an open syllable, in four instances.

Of course the fact remains that though, on the above hypothesis, the sign ' represents merely a simple vowel (or semivowel) in the spoken tongue, still in actual writing ' would in point of fact often stand between, and so separate,

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1. In nos. 10-13, 15-21, 25, ' is an integral element in the word, or a suffix, it has its vowel value and is not a semivowel. This is clear from nos. 10 and 19 where ' is final.

two words; and it is possible that this may have been the origin of the later Phoenician device of indicating the separation of words by a vertical stroke, ' .

Now is it possible to determine which of the vowels i (y) and u (w) ' represents? I think it is.

If we examine the Brahmi of the Asòka inscriptions we shall observe that the vowels in composition are written[1]

R' = ĭ; R'' = ī; R^ = ā

‾R,` R = e; R₌ / R꜀ } = ǔ; R⋏ / R⋀ } = ū; ‾R‾ / -R- } = o

Of these ǔ, ū and o might be explained as abbreviations of the independent forms of these vowels. In the case of Sign VI 35[1], Proto-Indian has the full independent form of o, But ā, ē, ĭ, ī, are susceptible of no such explanation. How then are they to be accounted for otherwise than by assuming that like the other independent signs of the Brahmi script, they are descendent from Proto-Indian prototypes. In the case of ǔ, ⋈ as a variant of ⋈ may be an illustration. In the case of ĭ and ī we have the prototypes in identical shape and (allowing for the reversal of the direction of writing) in the identical position. Since then we have already shown that ' and '' are vowels in Proto-Indian, and we now see that ' and '' are vowels in Brahmi, and that their presence in the script cannot be accounted for except on this hypothesis of descent from lost prototypes, can we avoid the conclusion that Brahmi ' is Proto-Indian ' and Brahmi '' is Proto-Indian '' ? Then we have now fixed the values of Proto-Indian ' and '' viz. ' = ĭ, '' = ī.

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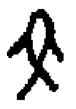
1. See Bühler, "Indische Palaeographie", Pl.II.

It is further quite possible that Brahmi ₺ , ū, is the element ₺ in the sign ✕ ; that Brahmi L = u, which before the reversal of the script was probably 〉 may be from Proto-Indian 〉 , (= wa). Again Proto-Indian R̂, may well be the ancestor of Brahmi ⁻R⁻ = o, in spite of the apparent derivation of the Brahmi element ⁻ ⁻ from 7 . And even if the later element were accepted as the origin of Brahmi ⁻ ⁻, there would still remain the question whether Proto-Indian ^ (which appears only in combination and never independently like ' , ") is not itself a modification, for purposes of combination, of the Proto-Indian √ .

In conclusion we may now regard Proto-Indian ' as ĭ (or y), " as ī, ỿ as wi, and ^ as o. This will assist us considerably in deciphering the script, as all these signs are of fairly frequent occurrence. To these we may add / in combination as ŭ, ⁻, ˋ , , in combination (placed within a sign as in ⚲ , ⊛) as s, ₺ as ū, / ,) is probably wa, which when followed by ' contracts to w-i, written ʹ/ , ʹ/ , the element / in this case being virtually reduced to a mere labial glide. The symbol ⌐¬ which we find only in composition may well be this wa in composition. For if, as we shall see from the analysis of the next table there is reason to regard ⊳₭ as a closed syllable, and ⊳₭ as an open or compound syllable: it is clear that ⌐¬ is the consonantal element preceding the initial vowel of ⊳₭ . Now this element is something which if omitted causes the vowel of the dative suffix to coalesce with the initial vowel of ⊳₭ , and if inserted serves to bridge the hiatus. Surely then it is a semivowel. And since it is not the semivowel y, it must be the semivowel w. (Compare the form of the labial glide ʹTʹ in Ethiopic).

Analysis of Table XXX.

It will be observed in Nos. 14-26 we have the familiar sequence AN-Ī. If we were right in analysing this as meaning 'To (the god) AN', it is probable that what precedes is in the nature of a preliminary formula 'For (the life of) Dungi', 'for my life', 'for the patesi' etc. It will be observed that while that which follows in these texts is normally proper names, sometimes prefixed by the 'fish' sign 'son of', that which precedes the dedicatory words " is not found elsewhere either as a complete text or in such a position on a text that we might infer it to be a proper name. This confirms us in our inference that what precedes " is a formula rather than a name. With regard to the remainder of the texts in this table, it is probable that that which follows " is in *every* case a proper name (with or without the usual prefixes to proper names such as  ,). In many cases there can be no doubt about this, viz. 1, 2, 3, 4, 7, 9, 10, 11, 14-16, 18-22, 25, 26, 28, 32-35, 37, 40, 43, 44, 46, 47-50, 53-57, 61-63, 66, 67, 70, 72, i.e. 44 out of 74. This proportion of certainties is so high that it will probably be not rash to assume till evidence to the contrary that in every case that which follows " is a proper name and utilize this knowledge for the purpose of elucidating those texts which do not contain " .

Conversely it is desirable to point out that of the 60 sequences found preceding " only three (and these only once each) are found as initial elsewhere, viz.

M. 458, 405, and I.13 Now these are very instructive.

Compare M. 458. with text 21,

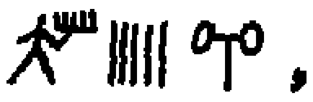
If our previous inferences are correct then

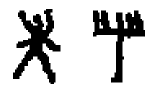
M. 458 = 'Servant (of) the god '

and text 21 = 'to the god (name of owner).

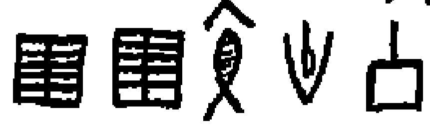
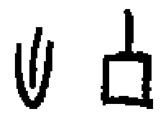
Now compare M.405 with text 67

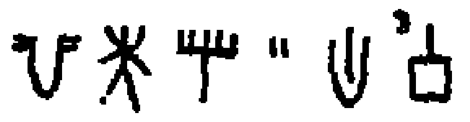
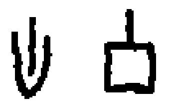
If our previous inferences are correct then

M. 405 = ' , - Goddess (?)' [1]

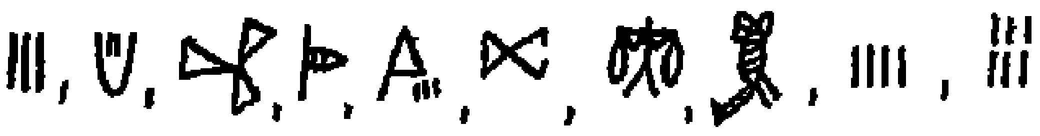
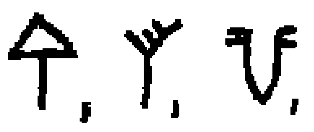
and text 67 = 'To , Servant of  '

from which we see (a) that ◇ and are determinations (or titles) of divinity, probably male and female, (b) that these determinations (or titles) are placed after the word they qualify, (c) that they may be omitted, (d) that |||| is a variant of ||||| , which proves they are not numerical signs, (e) that is a variant of .

Compare I.13  = (To)  (name)[2]

and text No. 37  = To  (name).

So the three exceptions only serve to strengthen our conviction that ◇ is a symbol of divinity (or by itself a god's name like Sumeric 𒀭 = Anu or dingir), that " is dedicatory (a dative suffix), and that what precedes it is either a god's name or a prayer.

If we combine the evidence of the contexts where ' is a semivowel and those where " is elided we find that the signs:  [3], are closed syllables,  are open syllables.

Analysis of Tables XXXI - XXXVII.

In this table we have the numerical signs from 3 to 9. The principal evidence that these are numerical signs is their remarkable correspondence with the same numerical signs in Proto-Elamite and Sumerian. It will be noted that the commonest occurrence of these signs is with the tree sign. All of

1. Probably a temple seal.

2. The name is normal, see Table XIV. The disappearance of " is to be explained as elision or contraction. See analysis of Table XXIV.

3. To which may be added on the evidence of Table I.

them without exception are found with this sign (in the case of 8 the numerical is compounded with Y doubtless for phonetic reasons). With some this combination forms the majority of the total number of occurrences of the numeral sign. It has been already suggested that we may regard this combination as the sign plus the ordinal suffix. Indeed in view of the fact that this combination is found as a complete text, presumably a proper name, in Nos. 2, 17, 18, 25, 72, 76, 83, 113, it is difficult to conceive any other explanation. Doubtless " and ' were originally numerical signs, but they do not appear in any contexts that will bear a numerical interpretation in our texts. They were used to represent the vowels Y, I, with which their numerical values were perhaps homophonous, and to avoid confusion the place of " as a numeral seems to have been taken by || , at least when the numeral sign for '2' was required in a proper name. This at least is what appears to be suggested by the evidence of Table XXXVI, Nos. 84-87, especially 84, where we get Y || appearing as a complete text just like Nos. 2, 17, 18, etc. mentioned above. It will be observed that sometimes this || resumed its original size " , and was then written in the middle of the line (see Table XXXVI, Nos. 123-125). But this would not be easy to distinguish from the vowel " which was also occasionally written towards the middle of the line (See Table XXX, Nos. 1-7), and consequently the elongated form || appears to have been normally adhered to. The form | is probably the numeral equivalent of ' , but does not appear to be used in a numerical sense in these texts except in No. 45 of Table XXXVII. To decide whether in a given text a numeral sign is to be read as a numeral or as a word or syllable that happens to be a homophone of that numeral we have two indicators: (a) the recurrence of a particular

sign accompanied by several different numerical signs, (b) the recurrence of one numeral sign, and one only, a number of times with one and the same non-numeral sign. In the former case the numeral sign is to be read as a numeral, in the latter as a homophone unconnected with any numeral except by the accident of phonetic identity. There will remain a number of cases where a given sign is found only once or twice with a numeral sign. These will remain for the present dubious.

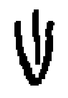
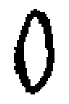
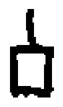
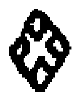
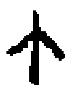
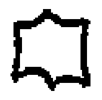
Applying the above criteria we find that when a numeral sign is followed by it is to be read as a numeral,
where the numeral is followed by ;
where the numeral ||| follows  ; where it precedes  ;
where the numeral || precedes  ,  ,  or follows in the sequence ; in all cases where | occurs except M. 133; it is <u>not</u> to be read as a numeral.

Table XXXVI, No. 88 is very interesting; it shows that " written in the middle of the line can be substituted for || and is thereby sharply differentiated from " the vowel. The vowel " and the sign || are distinct in the script, and it is perhaps scribal carelessness, or perhaps a survival of the era before their differentiation, that accounts for both occasionally appearing as " . They are however never found <u>both</u> written this way on one and the same text.

With regard to ||| , |||| , ||||| an examination of the plates will show that the length of the strokes varies considerably, especially with the "tree" sign. With the length of the accompanying ||| is apparently constant. The difference in length is probably determined merely by convenience and an aesthetic consideration for the appearance of the line. So that we may almost certainly regard ''' and ||| , '''' and |||| , ''''' and ||||| as mere graphic variants.

The signs in Tables XXXIV and XXXV are probably not of numerical origin. Since (a) it is unlikely on Sumerian or Proto-Elamite analogy that the digits were represented by single strokes exceeding 9 in number, (b) there are no intervening signs of 10 and 11 strokes, (c) the signs are not found in the normal numerical sequences, notably ΥR. The pictographic origin of these signs is perhaps to be found in the ornamental design on the symbol  (see Plate I). If this be so it is quite possible that the three signs in Col. IV of Tables XXXIV and XXXV should be regarded as simple variants.

It is possible that in some cases at least |||| , ||||| (Table XXXVI) |||||| , ||||||| are to be regarded not as numeral signs but as simple variants of a single sign of non-numerical origin whose pictographic original has been lost. Perhaps a fence? This is suggested by a comparison of texts 82, 92, 93 of Table XXXI, and of texts 2-5 of Table XXXVI. The normal way of writing the numerals would appear to be | ; || ; ||| ; |||| ; ||||| (rarely |||/||); |||/||| ; ||||/||| ; ||||/|||| ; |||||/|||| . It is not certain how 10 was written.

That which is found on the Harappa prisms is the numeral 10, and that the prisms themselves (which usually contain names identifiable with those on the seals on one side), are receipts of tribute, etc. ' |/|| , Table XXXII is not likely to be a graphic variant of ||| numeral, since in the uneven numbers the majority of strokes is always placed in the upper layer as in Sumerian and Proto-Elamite.

¦' , Table XXXIII, is not likely to be a graphic variant of ''' since it appears in no normal numerical sequence. It may be compared in shape with the Proto-Elamite ^^^ (See D.E.P. XVII. Tablets passim, usually in the first column, but never initial as here in texts 5, 6).[1] We may now consider ¦¦ in texts 114-116 of Table XXXI. Inasmuch as (1) ¦¦¦ is found preceding Ʊ in No. 112, where it is clearly phonetic (Ʊ is preceded by no other numeral of the Table), (2) ¦¦ is only found in 5 instances, Nos. 114-116, 118, 120, in all of which it is separated from other combinations of short strokes by only one intercalated sign, (3) in 116, which seems to be an identical word with those contained in 114 and 115, the order of the strokes is reversed without apparent derangement of the sense, I conclude that ¦R¦¦ and ¦¦R¦ are but ¦¦¦ combined. Similarly ¦¦Y¦¦ is but Y ¦¦¦¦ combined (doubtless on phonetic grounds). It is significant that) and Y are normally preceded by numeral signs. Similarly ¦¦)¦¦ is)¦¦¦¦ [2], ¦X¦ is X ¦¦¦¦ ; which again is what we should expect since elsewhere X is preceded by numeral signs. And ¦X¦ is X¦¦¦ . With regard to the sign ¦ ¦ in Table XXXI. It might be taken for a divided form of ¦¦ if any such sign existed. But as we have just shown it does not. '4' is always written |||| . There is no sign of which ¦ ¦ could be a form modified for purpose of combination. Moreover it is quite certain that in the case of ¦Ӽ¦ at least we have no compound of the ordinary sort. For from all we have seen of compounds the enclosed portion is always to be read last. Now in the case of Nos. 45 and 46 this would break up two well established sequences. Here the element ¦ ¦ can only represent a modification of or addition to the final syllable of the words Ӽ|| , ӼΨ. In these two cases the

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1. Cf. also Brahmi ". " = ĭ. It is possible that this may be an alternative writing for when i is used as a full vowel syllable, and not as a semivowel, or the vowel element in

modifying element would appear to make no difference to the sense, but to be merely euphonic due perhaps to these words being final: they are final nowhere else (see Table XIII). In the case of No. 41, seems to affect the sense as well as the sound of , which would appear to be a name in itself. 'To ; The son of . is nowhere else found final. The same remarks apply to the occurrence of with A comparison of Table XIII, 183 and 181 with 195 and 197 would indicate that in these cases and were identical in sense, and if not identical at least interchangeable in sound. It will be observed that in the fragmentary text 53 is final:[1] elsewhere is never final - or solus. Here then there would appear to be a change of sense. In text 55 is also final. It is only once final elsewhere (Table XIII, 297). In text 58 is final, and solus; in 61 it is also final. Elsewhere is only once final (Table XXI, 34). It is noteworthy not one of the sequences found with are found with , notably : so perhaps is modified in sense as well as sound. is final in every occurrence; is never final. is final in No. 66. is never final.

What sort of a graphic modification then is this which usually alters the sense, but not always; which alters the sound but slightly; which has a marked tendency to attach itself to certain syllables when final? An indication may be obtained through Table XXXIII, No. 9. Here we have a sign which is almost certainly to be identified with seeing how often attaches itself to the fish group, including the variety . Now if we turn to the Asoka Edicts we find ' represents the <u>anusvar</u> - and indeed does still in the scripts derived therefrom to this day! It is possible that this is the Brahmin reduction of a sign which in Proto-Indian on grounds of symmetry, was distributed equally about the sign

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1. and indeed solus.

i.e., : : , ' ' may well be the sign of the nasalisation of the syllable. It has been already observed that the fish group are open syllables. , , are probably also. Nasalisation is often merely euphonic, though of course in some cases a nasalised syllable may make a word quite distinct from the same syllable un-nasalised. It is unnecessary to labour this fact which of course is common to many languages.

A comparison of Texts 47 and 48 shows that the sign of nasalisation could be attached (written around) the last syllable or the whole word optionally. Graphically the latter would be analogous to the convention regarding the writing of a pollysyllablic word as an 'integral' compound.

In Text 34 (IIIIII) is probably for IIIIII () See analysis of Table XXVI.

Analysis of Tables XXXVIII-XLII.

It was argued in Table XXIV that '/ was a form of the dative suffix, alternating with " and ' when preceded by . An examination of texts 12-18, 29, 30, 43 suggests that in the sequence '/ also '/ is the dative suffix since (1) the sequence is normally initial, (2) is unconnected with what follows it. In the case of the sequence '/), Texts 1-11, 31, 37, '/ is clearly part of the word, unconnected in meaning with the dative suffix, though doubtless homophonous with it.

Now in regard to the pronunciation of '/ , if ' is I̲ and " I̲, '/ may well be w̲i̲ and "/ w̲I̲, i.e., long and short i pronounced with a labial glide. If is cognate to in sense, as it well may be judging from its contexts, it is possible that it is the same word differently articulated. If is AN may be UN. Then we should understand the labial glide before I. That /,) may be wa (and so '/ wI)

is also suggested by the form of the Brahmi ŭ which may well be derived from it. Have we also a Proto-Indian prototype of Brahmi ū? I think we have in the element which we find in composition in certain Proto-Indian signs, viz. , , . But the original form in Proto-Indian may have been for which the stroke at right angles served as a support. The form ᶦᶦᶦ seems to appear in . For it would seem fairly certain that is articulated with a labial vowel on the evidence of , which is the only variety of 'fish' that follows it, (see Table I, Nos. 388, 390, 391). Can we infer from this that the numeral sign ||| on our texts is the same as this vowel ū? I think not. It would be most strange if the first three numerals were pronounced ĭ, ī, ū, respectively. How independent ū (as distinct from ū in composition) was written in our script I have not discovered. The phonetic value of |, ||, ||| as numerals is probably quite distinct from their value as vowels. That the vowels should be written with numeral signs is an arrangement obviously artificial, but very comprehensible. It shows that their origin does not go back to the ideographic stage of the script but is a later development of a phonetic age. That this age should be circa 3,000 B.C. is interesting.

If ū in composition in Proto-Indian is written ᶦᶦᶦ ᶦᶦᶦ and , how is ŭ written? This brings us to an examination of .

If / is 'wa' what is ∧ ? The attachment of an inclined stroke to the lower portion of a sign is found in the case of (see Table LIII) and (see XLIX, 38, 39)[1]. In these cases it is clearly a modification of the vowel of the syllable. Now if, as we have shown, there is reason to think ' '' which in Brahmi syllables indicate ĭ, ī, are derived from Proto-Indian ', '' then surely , – which in Brahmi

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1. Cf. also Table (Table LXXXIV).

syllables indicate ǔ, is derived from Proto-Indian / , \ .
In other words if internal evidence leads us to conclude that / , \ , in our script is a vowel, the external evidence of Brahmi makes us fairly certain that that vowel is ǔ. Thus if / is '<u>wa</u>', then ⋀ is <u>uwa</u> or <u>wau</u>. This in the script of Safa is ⋀ , which is identical with out Proto-Indian form. The sign in Safa has the value u and the name <u>wawe</u>.

In other words both the sign, its phonetic value and its name have been taken from Proto-Indian!

The sign ⋌ of Table XLII is shown by its sequences to be quite independent of ⋀ of Table XLI. It is doubtless derived from a single ideogram, whereas ⋀ is, as we have seen, a composition of / and \ .

<u>Analysis of Table XLIII.</u>

The sequences show that all the signs in Col. IV are identical or at least allied. I take all to be identical. The penultimate sign is only found in a text when the writing is boustrophedon, and in a line where the writing is from left to right. As already noted in the discussion on the direction of the writing, other signs as well as)) are found reversed in the left-to-right lines of this text.

The form of the second sign is peculiar. The same modification is found with (|) and () (see analysis of Table XXXVI).

The first form in col. IV, is probably the next oldest. From this the remainder have been abbreviated by omitting the lower curve.

Analysis of Table XLIV.

The sequences show that the first two signs in Col. IV and the signs given in the column against texts 37-41 are variants. The original form is probably)(, whence and then , by drawing the left half of the sign further to the right and shortening it. The key sequence is R. In text No. 41 this word is written as an integral compound

The last two signs are probably quite independent, being of different ideographic origin. The signs are variants of one another, but as the key sequences R, R, R show, quite independent of . The reversed aspect of these signs is purely accidental, and their ideographic origin quite distinct. is clearly allied to as the sequence R shows. Whether the internal strokes are in the nature of a gunu modification involving no modification of sound or sense (as sometimes in Sumerian), or represent a modification of the vowel, or indicate merely an older and fuller form of the sign it is not at present possible to decide. On the whole I incline to the gunu explanation of all these additions of more than one interior stroke, e.g., in , , , .

Analysis of Table XLV.

All the signs in Col. IV are variants. The reversing of the sign in texts 25, 26, seems to be without significance. As we have seen the compound here is . As), is normally preceded by a numeral, it is unlikely that is anything but a simple variant of . Indeed we need not suppose deliberate reversal, for a comparison of the form , with in Table XLIII suggests that is the original form of which and are abbreviations made by taking the upper and lower portions of respectively. It would further

appear that ideographically [sign] , [sign] is but the doubling of [sign] , [sign].
or that [sign] , [sign] is the halving of [sign] , [sign].

Analysis of Table XLVI.

From the sequences it would appear that all the signs in Col. IV are variants. The full and early forms are probably the second and third: the latest [sign] and [sign] . The sign is probably an umbrella. (See analysis of Table XLIX, end).

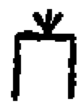
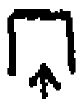
Analysis of Table XLVII.

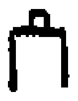
The first two are clearly variants by their graphic resemblance. Cf. [sign] and [sign] . The fifth may be classed as a variant for the same reason, but with less assurance. The third may be a later and more conventionalised form by separating the horns (?) from the arms (?), straightening out the former, and amplifying the head (?). Morphographically there is a curious parallelism between [sign] and [sign] on the one hand and [sign] and [sign] on the other. If [sign] is ideographically a man, perhaps [sign] is a god or hero, the additional element being horns (cf. design on M.440). [sign] [sign] (cf. [sign] Table XLIX, No. 30) may be a man with legs together, and [sign] a divinity in similar posture.

[sign] is clearly [sign] + ^ , the vowel o.

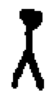
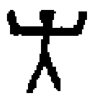
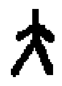
The last sign in column IV is doubtfully a compound, as we have no sign Δ elsewhere. It may be a modification by means of [sign] (see analysis of Table XXVI).

Analysis of Table XLVIII.

The key sequence is R . This shows that the first five signs in Col. IV are identical. A comparison of texts 32, 33 shows that the sixth sign is also a simple variant of the fifth. Regarding the forms  ,  there is little indication to be obtained from the sequences. But their shape and the fact that the varieties 1-6 show considerable divergence may justify us in concluding provisionally that they are variants.

The last sign is probably a compound of  and (see Analysis of Table III).

Analysis of Table XLIX.

The sequences indicate that the first five signs are all variants. The key sequence in this Table is R'V . The form  is interesting as being an exact approximation to the Brahmi form of the sign. The fifth form is perhaps the oldest. The sign is clearly the silhouette figures of a man. The sixth and seventh signs in Col. IV are probably the base form modified by the vowel i. The eighth and ninth are probably pictographically independent. They have their exact parallels in Egyptian. But the sequence R'V in texts 39 makes it possible that  may be a variant of  .[1] The tenth sign is probably, almost certainly, the base form modified by the vowel u. In view of what we have noted regarding the fluidity of the liquid vowels it is not surprising to find this

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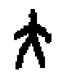
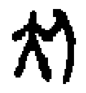
1. We have said in the Analysis of Table I that  after V is probably the determinative 'servant'. may be the Egyptian determinative 'high' signifying that the man V0 (servant of 0) was a high official.

sign in the same sequence as the sixth and seventh. The eleventh sign is probably a variant of the tenth. It is not probable that the position of the modifying vowel relative to the sign is pertinent in view of the evidence of texts 32, 33. If 𐀁 were bi and 𐀁 ib we should not expect an identity of sequence. The twelfth sign is probably the base form modified by ∧ = o.

The thirteenth sign (texts 42, 43) is pictographically different from the first, but it appears in identically similar circumstances (cf. Nos. 14 and 42). It is probably, like 大 and 𐀁 a determinative. In shape it approximates to the Egyptian sign for a man, performing the hnw rite. The next two signs in Col. IV closely resemble the Egyptian determinative 'slave' plus the sign U . From the evidence of Table XXXVI, 42, we know that U|| are to be read together as one word or phrase, || being a numeral and U some numerable object forming the subject matter of a receipt. To this object is ligatured the determinative 'slave'. The object itself is then probably a slave. It is difficult to think of any other commodity which could be at once the subject of a receipt and qualifiable by the determinative slave. The texts then probably read "From X (name) two slaves - det . "From Y two slaves - det . For there are strong reasons for taking 𐀁 as the suffix 'from' (See Analysis of Table LVIII).

With regard to the next two signs in Col. IV, the second is but the first reversed, and this reversal is due to the reverse of text 48 being read boustrophedon from left to right. Is the sign 大U to be read as U ligatured to its determination, or as a phonetic compound standing for 大 U, or as an ideographic compound? Against the first it may be argued that 大 is never followed by " , while its 'compounds' are so found on four occasions - texts 46, 58, 64, 85. The same evidence is opposed to regarding it as a phonetic writing arising from

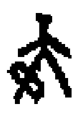
euphonic considerations. We may then regard it either as a true compound phonogram (a compound of two syllables to form a word unconnected in meaning with that of either of its syllables) or as a compound ideogram. In selecting between these we have to guide us only the analogy of the script from which the compound may have been borrowed, and the rationality of the compound from the ideographic point of view. We may compare the sign with Gardiner. E.G. p. 439, Nos. 36, 37, where it is an ideogram - 'brewer'. The element U in Proto-Indian may well have been a vessel[1], like the parallel element in its Egyptian fellow.

Similarly  may be in Egyptian op. cit. p. 437.24
" " " " " " " p. 437.21
" " " " " " " p. 439.34
" " " " " " " p. 439.35
" " " " " " " p. 436.12

The last two signs in Col. IV are probably variants of
Cf. texts 70 and 86 for sequence R| , R||

is perhaps a man with shield, an ideogram for 'defence'.

a standard-bearer.

 a man with a fetter on his leg - a prisoner.[2]

The next sign in Col. IV is a man invoking (Gardiner op. cit. p.438.27) plus the sign of divinity in the plural = 'He who invokes the gods'.

The next sign is probably an ordinary phonetic compound. If we separate its syllables and read we get the

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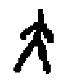
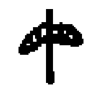
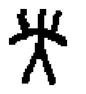
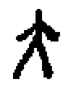
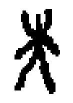
1. This of course without prejudice to its meaning 'slave' in the contexts aforementioned. The words for slave and vessel may well have been homophonous.

2. I am indebted for this suggestion to Professor Langdon.

sequence and final, both of which are well established elsewhere. Had the scribe desired to make a compound ideogram of a man and a flag he would probably have written on the analogy of .

The next sign is probably ideographic representing a man with umbrella. It is clearly a combination of  and 

Analysis of Table L.

The first two signs are simple graphic variants. The last sign is compounded of  and . It is probably an ideographic compound like . If  is ideographically 'man' and  a horned man, i.e. hero or god, and if is a bow and arrow, the = archer and = divine archer.

Analysis of Table LI.

From the sequences we see that the signs in Col. IV are simple variants. The sign seems to represent a bird inclined at an angle of 90°. It is clear from a comparison of the sequences that the sign stands for a word that is distinct from the word or words represented by the other bird signs (Table LXXIII, XCIX).

Analysis of Tables LII and LIII.

It is not always easy to distinguish and in the texts from their shape alone. But that they are distinct is clear (a) from the evidence of their sequences, (b) from the fact that both varieties occur on the same text: see 4, 6, 12, 16, 22, 34, of Table LII. The last sign in Col. IV of Table LII is almost identical with the second sign in Table LIII. Yet the sequence shows that it clearly belongs to Table LII. It is more likely that the two forms had

independent pictographic origins, than that the one arose from the other by intentional differentiation. As we have seen when Proto-Indian desired to form new signs by differentiation they did it by the addition of strokes, and that in a manner to make the differentiated sign readily distinguishable.

The first sign in Table LIII, plus ', is merely a carelessly made " cf. texts 16, 17, and Table LXXXI.

is a modification of , probably by substituting the vowel u for the (inherent) vowel a. The change is not made on euphonic principles, since is found between the same signs as . The phonetic modification is therefore to be attributed to dialectal variations in the pronunciation of the word

is a phonetic compound of and . It is elsewhere written as separate signs, see texts 4-9, and especially 4 and 5. Now why should it be optional to write or ? Surely because it was optional to pronounce the combination as two syllables, or as one syllable by contraction. Now it has been shown that has probably the value wi, ui, or u. is probably a syllable ending in a, since the addition of / can be made to it for purposes of vowel modification. Then in we have ba-wi while in we have b'wi.[1]

by its position in the text is probably an effaced form of and the two signs following the letter in Col. IV. These four signs are probably modified by ū. The 'chevron' strokes seem to be of the gunu order, without effect (?) on the sound or meaning of the sign, cf. , , But they may be ū forms. See Analysis of Table XCI, note (1).

and are probably compounds of with | and () respectively. Whether these compounds are ideographic or phonetic is impossible to say on the evidence.

The last two signs in Col. IV are clearly allied or

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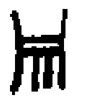
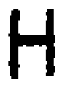
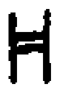
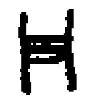
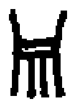
1. Or it may be an "integral" compound.

identical judged by their shape and the sequence R . The fact that the first has one short interior stroke, and the second two, leads us to regard them as allied rather than identical: vowel modifications of a base-form which however is lost, its value being supplied no doubt in our script by a homophonous sign. There two signs are probably ideographically distinct from the other signs in Col. IV.

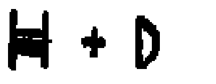
Analysis of Table LV.

Clearly all variants.

Analysis of Tables LVI-LVII.

With regard to the first five signs in Col. IV. The key sequence R shows that the third and fourth are identical. The presence of one or two horizontal bars in the sign is therefore immaterial. Signs 1-3 may therefore be regarded as identical. Now this group can be linked up with sign 5, though doubtfully, through the sequence R, R. If we now consider Col. IV of Table LVII, we may admit the possibility of the third sign of Col. IV being the prototype, from which were evolved (found only in Susa) ,  and ; of this sign having a phonetic value containing a vowel other than a; and of  ,  ,  being derived from this sign by dropping the interior perpendicular strokes (originally two of the quadruped's legs) to serve as a sign for a word with the same consonantal element as  but with the vowel a. This assumes that the base form represents a syllable containing a liquid vowel. Such a device could of course only arise among a people familiar with the principle of modifying a syllables to form i, ē, ŭ syllables by the addition of perpendicular strokes.

Texts 15 and 16 of Table LVI are clearly parallel, so that the signs against them in Col. IV are to be treated as

allied or variants. The sign against text 15 is apparently defective. It would seem that the original was , a compound of  . The sign against No. 16 is apparently the same plus the vowel ∧ = o. The compound is phonetic. It is found dissolved in Text. No. 5.

The last sign in Col. IV of Table LVI is a compound of | and

Analysis of Table LVIII.

All the signs in Col. IV, except the last two are clearly variants. The last two are probably variants of each other. That they are variants of the remainder is most improbable in view of both varieties occurring on the same text (No. 95). They are therefore probably quite independent of and ideographically different from the rest of the signs in Col. IV.

Regarding and its graphic variants we note (a) it is normally final, (b) it is found on some seals, including one (text 74) with the common dedicatory formula 'To God', (c) it is found abundantly, almost invariably, with the documents containing on one side V accompanied by a numeral. These documents contain on the other side a name or title followed by . They are not seals, nor impressions, but are lightly incised for direct reading, as is clear from the direction of the writing which is from right to left.[1] These documents are peculiar in shape: they are as a rule either rectangular or lozenge shape, differing alike from the seals and the votive tablets in their dimensions. Several however are written on three-faced prisms, and one or two on two-faced slabs of a peculiar shape, see Plate XXXI, No. 100, Plate XXXIV, Nos. 160, 161. The fact that this class of document is almost invariably accompanied by a numeral, followed by the object

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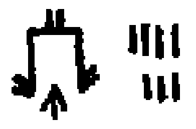
1. With a few exceptions.

enumerated; that it is written, not stamped, on a material of special format evidently prepared for the purpose, seems to suggest that here we have a class of business document. The fact that one side contains a man's name, and the other the object enumerated suggests that this document is in the nature of a receipt or promissory note. The fact that the man's name is almost invariably followed by the suffix suggests that that suffix means 'from'. That this sign should also be found on certain seals in the same final position is confirmatory evidence; since we know from the dedicatory formula, and from the impressions made from these seals on thin rectangular slabs printed on both faces, that these seals were primarily fashioned for the purpose of manufacturing votive tablets. It is natural then that some of them should begin with the dedicatory formula and end with 'from'. Of course in many cases either the dedicatory formula or the suffix 'from' or both were omitted. This probably increased with the passage of time and the tendency to use and manufacture the seals more for the purpose of indicating ownership than offering prayers.

It will be observed that when the sign is reversed the writing also is reversed: Nos. 86-88, 91-93. Yet not always, see text 90.

Analysis of Table LIX.

The second sign in this table should probably not have appeared here but been placed in Table XLVI on morphographical grounds. The resemblance in sequence between texts 5 and 8 is illusory as  forms a single word.

The remaining signs in Col. IV are shown by their sequence to be simple variants. The earliest form was probably , the ears being subsequently modified finally to disappear. Cf. Analysis of Table XIX.

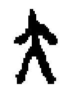
<u>Analysis of Table LX.</u>

The sequence R makes it certain that all except the last two are simple variants. The penultimate and ultimate can hardly be regarded as otherwise on morphographic grounds.

<u>Analysis of Table LXI.</u>

The first sign in Col. IV has been included in this rather than in the preceding table on account of the identity of sequence as between texts Nos. 2 and 13. The evidence of their texts again, added to that of H.110 obverse and reverse (texts 3 and 11) shows that in the case of this series of signs the addition of internal strokes makes no difference in sense or sound, and that all the signs in Col. IV are to be regarded as simple variants.

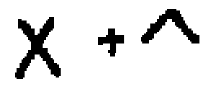
<u>Analysis of Table LXII.</u>

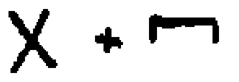
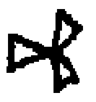
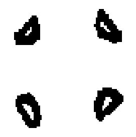
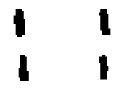
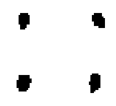
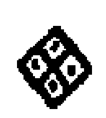
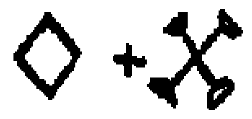
The first sign in Col. IV though only once found alone, is found twice in a compound. (See Analysis of Table LVI). The sign appears to be a bow. It is ideographically and phonetically distinct from the remaining signs of Col. IV. These are all variants of one another. The sign represents a bow and arrow. It is noteworthy that it is never followed by  , which suggests that is not a phonetic compound.

<u>Analysis of Table LXIII.</u>

The sequences show that the first five signs in Col. IV are simple variants, and this being so it is probable that the remainder are also variants.

Analysis of Table LXIV.

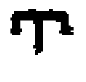
The second sign in Col. IV may be  , i.e., the syllable pronounced with o. The third sign may be ideographically independent.

is probably  . The latter element is found also with and  . (Tables LXXI and LXXXVI). It is not found independently, so that it is unlikely that we have here a compound of two signs. It is more probably to be explained as a modifying element, like . As we have said above probably represents a labial glide.[1] is conceivably modified by the annusvar. In that case the original form of the annusvar would be  , of which  and  would be later variants.  in Table XXVI would thus be explained as 

Analysis of Table LXV.

The short interior strokes in the second and third signs of Col. IV seem to be significant since they are found side by side with the base form in M.133 and 227 (texts 2-5). We may assume that they are with the vowel modified. The sequences in the two texts are really identical, since M.133 is to be read from left to right (see Analysis of M.133 in 'Direction of the Writing' p. 36 above). It is not probable that the modification by one or more strokes is material in this sign, since in No. 15 we have as many as four interior strokes. The sign in this case is clearly phonetically allied to the base form since it appears in the same sequence. Cf. text No. 11. The form is but a defective form of of which is a mere graphic variant.

The last sign in Col. IV may be an earlier and fuller form of , or it may be a compound of it and

[1] Perhaps the full and earliest form of is  see Table LXXI

Analysis of Table LXVI.

The distinction between and in the sequences is so marked that it is probable that they are ideographically distinct. It is possible however that the second is the first modified by the addition of four short lines . Cf. the modification , , which we have taken to be the Brahmi anusvar. Cf.

Analysis of Table LXVII.

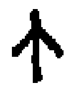
All the signs in Col. IV are clearly variants except the last two. These are clearly compounds of + The analogy of texts 16-18 shows that the compound is phonetic and is to be read 'king of the mountains' (?). I am at a loss to account for the reversal of the compound in text No. 20 as there can be no question here of a reversal of the direction of writing. It is perhaps a scribal error of shading the wrong triangle! It is the only case we have of a compound in which the elements appear reversed (except when the writing is also reversed).

Analysis of Table LXVIII.

In text No. 1 the initial sign is not to be taken as a variant of . Nevertheless the final position of combined with its shape will justify us in assuming to be a variant of . Pictographically it is explicable, if be the human eye, as Sumerian analogy would lead us to suppose. Then the interior dot will represent the pupil of the eye. So then the first sign in Col. IV is to be taken as the fuller and older form. As already remarked, functionally seems to correspond to . But the sequences commonest with and are mutually exclusive. So much so that if names ending

in are of substantival composition like _Jamna-dass_, names ending in may well be of completely different, say verbal, composition, like _Untaš-gal_.

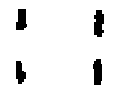
Analysis of Table LXIX.

That is ideographically distinct from either or  is suggested by its appearance in the texts doubled. Doubling is a marked and distinctive feature of certain signs (cf. Table XCII), while other signs seem to be at pains to avoid it (cf. Table XIII). It is probably in origin an ideographic representation of the dual number of a word, and was later used for any word that was a homophone thereof. Now and are not found doubled.

Analysis of Table LXX.

The second sign is probably the _gunu_ of the first. and different in meaning Its context does not suggest a vowel modification of the latter.

Analysis of Table LXXI.

The first six signs are clearly all variants. The next three are variants of each other, and probably phonetic modifications of by the element . The last sign is probably the penultimate sign nasalized by adding the  anusvar

Analysis of Table LXXII.

The last four signs are almost certainly variants of each other. They are probably a phonetic modification of the first: since when followed by they alter its vowel to u. It is probable then that they are articulated with the vowel u or o.

Analysis of Table LXXIII.

The sequence R suggests that the first two signs in Col. IV may be variants. Since the first four signs are all initial and all represent birds (or a bird) they may all be variants. Regarding the next three no evidence is forthcoming from the sequences, except that the fifth and sixth are quasi-initial: and the seventh initial, though doubled. This would suggest that if indeed they are all variants they are to be read as ideograms. For since the dual is almost certain to be phonetically distinct from the singular its initial position as a phonogram would be coincidental, whereas if we read the sign ideographically it would be rational. An ideographic reading would also help to explain why, in a script so highly conventionalised, this sign has retained its pictographic aspect.

The last sign is probably ideographically independent - a duck in a pond.

Analysis of Table LXXIV.

The evidence of the key sequence R, R (see Table LVIII) shows that all the signs in Col. IV are simple variants. The last two forms, which are reversed, occur only in reversed writing. The first (or third ?) form may be regarded as earliest, as latest.

Analysis of Table LXXV.

The two signs in Col. IV may be phonetically allied. Cf. Analysis of Table LVI, and cf. also Col. IV of Table LV.

Analysis of Table LXXVI.

It is possible that the two signs in Col. IV may be related.

Analysis of Tables LXXVII-LXXVIII.

It is interesting to note that though in text 2 of Table LXXVII the direction of the writing is reversed (left to right), the sign is not. Cf. Table LVIII, 90, where the sign is reversed though the writing is not.

Similarly the third sign in Col. IV of Table LXXVIII is probably identical with the first two, in view of its initial position.

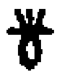
Analysis of Table LXXIX.

The second sign may be the first with the upper lowered till it touch the lower. The third and fourth are probably variants of each other. The first two may be the dual of the second two.

Analysis of Table LXXX.

The first sign may be a variant of the second, or its modification by the addition of a short stroke.

Analysis of Table LXXXI.

Since the identity of the first three signs in Col. IV seems established by the sequence R , it is probable that the remainder, whose morphographic distinctions are very slight, are variants.

Analysis of Table LXXXII.

The two signs are clearly variants. A comparison of text 1 with 2, and 3 with 4, shows that the reversability of the sign is independent of the direction of the writing.

Analysis of Table LXXXIII.

The first two signs are variants. The reversal of the second is due to the reversal of the writing. The additional strokes in the third and fourth are probably of the gunu order and as elsewhere in this script (and often in Sumerian) may have no effect on the phonetic value of the sign.

Analysis of Table LXXXIV.

The first four signs in Col. IV are variants. Again reversability is seen to be immaterial. It is probable that the last two signs are variants of one another and represent the syllable ᒣ modified by the vowel ŭ. It is curious though that ᒣ can be followed by Ʊ while ᒣ is found with V

Analysis of Table LXXXV.

The ground for regarding these two signs as variants is mainly morphographic. The sequence "R is too common elsewhere to carry much weight.

Analysis of Table LXXXVI.

For a discussion of the second sign in Col. IV see Analysis of Table XXIX and LXIV.

Analysis of Table LXXXVII.

The first and second signs may be regarded as variants in view of the sequence R||| . And since the last closely resembles the first in appearance, and the third looks like a simplification of the second, the whole four may be regarded as variants.

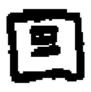
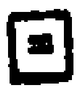
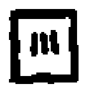
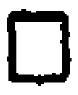
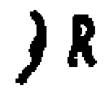
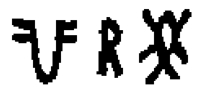
Analysis of Table LXXXVIII.

NIL.

Analysis of Table LXXXIX.

The last four signs in Col. IV are clearly variants. Regarding the second no indication is obtainable from the sequences, but on morphographical grounds it can probably be classed as a variant. Regarding the first sign we are less certain.

Analysis of Table XC.

The first five signs in Col. IV appear to be variants. The base form is probably  (see the last sign in Col. IV) variously written  (see the third sign) and  [1] (see the second sign). Later the internal strokes were omitted, and we get  as the base form (see the first, sixth and seventh and penultimate signs). These base forms are then modified by the vowel " = ī (written in each half of the sign on the symmetrical principle) and the vowel u (also written in each half: the sixth sign is probably defective). These three phonetic varieties; the base form, articulated with a (text 23), the form with ī (texts 1-12) and the form with u (texts 13-21) are also distinguished by their sequences,  with the form in a;  with the form in ī; , , , with the form in u. I am at a loss to explain the penultimate form, with five strokes in each register, unless indeed it is indicative of some other vowel or dipthong. If so we must bear this in mind as a possible explanation of and other signs containing more than threo internal strokes. For there seems little doubt that this sign is related to the

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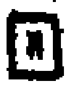
1. or  (see the fifth sign, and the last sign but two).

preceding in view of their common sequence R, initial. It can however hardly be regarded as a simple variant of it, if the number of internal strokes has any significance at all[1]; and this, in the case of texts 1-12 and 13-21 seems clearly established from the evidence of the sequences. So then we may resume our argument by say, differs from in a manner we understand - viz. as other signs in I differ from their relatives in u, and differs from both in a manner we at present do not understand, but assume to be phonetic.

Analysis of Table XCI.

The last two signs in Col. IV recall strongly certain phonetic variations of , viz. and . Here also these additional strokes are clearly material, since the key sequences of the first sign R, R are not found with the last two signs. On the other hand two sequences R and R are common to and . This is exactly parallel to what we saw regarding and , and we may draw the parallel conclusion - that is a phonetic (vowel) modification of . Now it is interesting to note that just as is certainly distinct from, though allied to, , so is apparently distinct from . Now we argued from the Brahmi (inter alia) that ' was probably ĭ and " ī. It is to be inferred from the existence of and that the Proto-Indian script had a means of indicating ē as distinct from ī, ĭ and that that means was the lateral short stroke (as

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1. Unless of course u was indicated in Proto-Indian by three or more short strokes: or, where there could be no confusion with I, as in the form , even by two or more strokes. See Table LIII, Nos. 33-38. This suggests that the scribe was indifferent as to the number of strokes by which he indicated a given vowel, provided there could be no ambiguity. See also Table XV.

distinct from the perpendicular). This would be exactly parallel to the Brahmi method of indicating the vowel ē in open syllables. Here also as in Proto-Indian, the lateral strokes were not always horizontal but sometimes inclined,

Analysis of Table XCII.

The key sequences in this Table are RR, RR , RA , R , RR . These show that all the signs in Col. IV except the last and the first four are variants. The last is probably nasalized. Regarding the first four signs the sequences are silent. The first sign is probably independent. The next three may be variants of each other.

Analysis of Table XCIII.

The last sign is broken. Consequently we cannot be sure either of its full form or its relative position in the complete text. Possibly it may belong to the group in Table XCII.

Analysis of Table XCIV.

The last sign may be the first modified by ' = .

Analysis of Table XCV.

Probably variants. The sign looks like a compound of + but the latter element is nowhere found as an independent sign.

Analysis of Table XCVI.

The third sign is probably a graphic variant of the first. The second is probably a simplified and later form of the first. The last two may be ū or guna forms of the second. The fourth sign is peculiar. The lines // may be a base for the three short strokes, like " in , \/ in , in which case is probably modified by the vowel ū.

Analysis of Table XCVII.

The two signs are clearly variants. The sign is ideographically distinct from those of the preceding Table. It is probably an insect: the strokes on the left being legs, those on the right being wings.

Analysis of Table XCVIII.

The first sign is probably the shield seen in . The second sign is ideographically distinct. The third may be the second plus ' = Y, or a graphic variant. Or again it may be ideographically distinct.

Analysis of Table XCIX.

The sign in Col. IV, is probably a bird in flight: or perhaps a bat or 'flying-fox'.

Analysis of Table C.

NIL.

Analysis of Table CI.

The two signs are probably graphic variants. Perhaps the ideogram of a beetle.

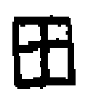
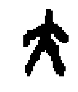
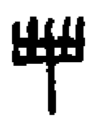
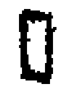
Analysis of Table CII.

NIL. This is a table of miscellaneous signs grouped here because they seem to have no connection with the signs of the other Tables.

SUMMARY. The analysis of the foregoing Tables enables us to recognize the vowels both independent and in composition. We also see which signs are simple variants. And we see which signs form regular groups and constitute words or phrases. We have identified the sign for 'God', 'to', 'from', 'son',

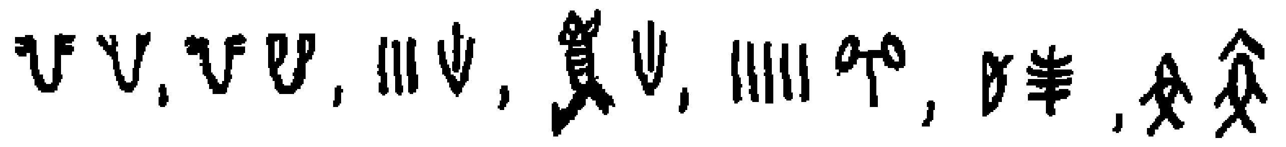
'slave', and guessed at several more. We have established the connection between Brahmi and Proto-Indian, and shown grounds for infering causal connections with Sumerian, Egyptian, Safa, Ethiopic, and Proto-Elamite. We may now explore these affinities with other scripts further in a Comparative Morphographic Table.

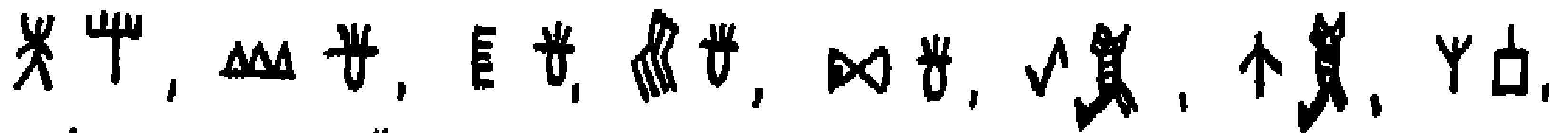
We have also shown that the script contains compound ideograms, and compound phonograms, and that the method of compounding is threefold - by bisection and enclosure, by simple enclosure, and by ligature (both vertical and lateral).

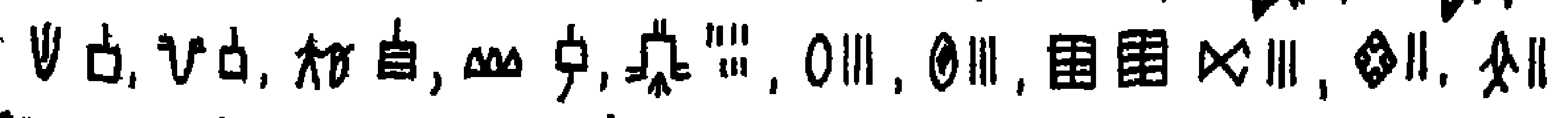
A word may now be said regarding cases where the same sign is repeated. The signs found repeated are , and  (with its variants). If read phonetically we must assume that we have here cases of the repetition of the same syllable. Now to this there seems to be a marked objection in Proto-Indian on euphonic grounds (see Analysis of Table XIII). Another objection to a phonetic reading is the anomalies in sequence that this would produce, e.g. we should have to read  as initial, and it is never initial. It is probable then that these repetitions are to be read ideographically. This conclusion is supported by  which is clearly written as a compound. Now the most naturally ideographic explanation of this repetition is to read them as the plural of the simple sign when they are repeated three times, as in the case with and , and as the dual when only two come together, as is the case with the remainder. Of course it does not follow that a plural or dual meaning is necessarily implied. In many cases the word or syllable for which the doubled or trebled sign stands may be merely a homophone of the dual or plural of the sign.

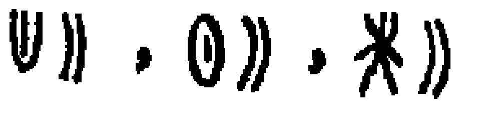
The analysis of these Tables also puts us in a position to determine in what cases two or more successive signs

constitute a single word. There are many cases when at first sight one is tempted to consider as a single word signs which upon further analysis are seen to be separate words, their occurrence together being due to the fact that they form a single phrase or formula oft repeated: e.g. . Since we know that is suffixed to a very large number of signs there is no reason to suppose that it is other than a suffix in this case. In deciding that two or more signs form a single word I have rigidly observed the following principles: (1) that the combination is found in a number of cases relatively larger in proportion to the total occurrences of one of its members. (2) That the first member of the combination is demonstrably independent of any signs found preceding the combination, (3) that the last member is demonstrably independent of any signs found following the combination. Observing these principles we find that the following are probably single words. I say probably, since it is always possible that what we take for a single word may really be two separate words forming a common phrase or formula.

 (10 variant spellings), (2 variant spellings)





(two variant spellings) (one variant spelling),  (one variant spelling), (one variant spelling), (three variant spellings),

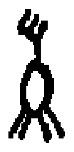
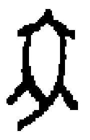
(one variant spelling),

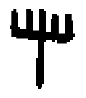
(one variant spelling).

On the other hand the following single signs can be shown to be separate words, since the signs found on either side of them (in the numbers cited) are known from other sequences

to be independent words:-

(passim), (M.240), (H.77), (M.344), (Harappa passim), (H.163), (I.28), (M.78), (M.203), (passim), (M.227, 270 and passim), (M.297, and passim with antecedent numeral), (M.311), (I.30), (I.5, H.78, M.452), (M.334, H.180), (M.210), (M.184, H.96. This group is very interesting showing how these sequences are built up with prefixes and suffixes. First we have the simple word then , then , then and finally - always in the same order), (M.375, 332, 313 etc.), (M.276, 83), (M.341, 179), (not found indisputably single, but its variant is so found, M.386), (I.27, M.271), (see " passim), (see " passim), (see " passim), (M.116), (M.459), (M.69), (M.440), (M.433), (M.264), (H.22), (M.165), (M.356), (M.235), (M.461), (M.382), (passim), (passim), (and all the numerals appear independently, see argument on numeral signs), (I.35, M.279, 280), (M.76), (M.272, 491), (passim), (M.196), (M.194), (M.215,344), (M.498), (see all cases where it is preceded by a numeral sign), (M.257), (M.171), (M.38), (H.107), (H.209), (M.118), (H.239), (M.237, I.15, M.165), (M.235), (H.205), (and variants, H.28, 29, 238), (M.96), (M.7), (M.441), (M.499), (M.155), (M.63), (M.442), (H.33), etc. (M.2, 206, and passim), (passim), (H.73, M.169 and passim), (M.295), (M.41), (M.387), (M.261), (H.223), (M.250), (H.44), (M.179, etc.) (M.195), (passim), (H.143), (M.81), (M.209), (M.277), (M.173), (H.146), (H.178), (M.240), (M.167), (M.127), (M.72), (H.231 etc.), (M.80), (M.162), (M.18, 466, 36, 51, one variant spelling M.50), (M.363), (M.8), (M.492), (M.202),

 (M.452), (M.182), (M.263), (M.266), (M.417), (M.456),  (M.77).

It will be observed that no sign of common occurrence, except  is not found as a single word. If, as there is strong reason to suppose from the phonetic modifications of signs in accordance with principles of euphony, each sign constitutes a single sound or syllable, we have here evidence that a large number of words in our texts are monosyllables - i.e., unilateral or bilateral roots. And it must be remembered that in the above list of independent signs no account has been taken of compound ideograms, which may well also be monosyllabic, nor of a large number of simple ideograms which are probably independent, but where the evidence is not strong enough to give certitude. I conclude then that we are dealing in this script with a language which is pre-eminently monosyllabic, and in consequence that the language is not Sanskrit, or Semitic, whatever else it may be.

TABLES OF PROTO-INDIAN SIGNS.

Explanation.

Col.II. The Reference Numbers are to the texts on the Plates, M = Mohenjodaro, H = Harappa.

Col.III. R. Signifies the sign given in Col.IV opposite it. If no sign is given, the last preceding sign in Col.IV is to be understood.

Col.IV. This column constitutes a sign-list. All varieties occurring in the texts, other than minor varieties of the thickness and degree of curvature and inclination of lines, are given in this column.

* Signifies that the signs are to be read from left to right. Otherwise all signs are to be read from right to left. Obv. = obverse. Rev. = Reverse.

Texts containing two or more lines on the same face are written as they would appear if they had been written in one line. This is in order to bring out the identities in sequence. Those texts which in the original inscription contain more than one sign in the second (or third) line are the following:

Mohenjodaro, 133, 139, 141, 151, 193, 230, 365, 391, 417, 447, 450, 453, 477, 499, 506, 514, 516.

Harappa, 107, 134, 241.

TABLE I

I Nº	II Text Nº	III Text	IV Sign
1	M. 107	[illegible]	[illegible]
2	5	[illegible]	
3	19	[illegible]	
4	24	[illegible]	[illegible]
5	503	[illegible]	
6	H. 133	[illegible]	
7	M. 206	[illegible]	
8	2	[illegible]	
9	H. 211	[illegible]	
10	41	[illegible]	
11	40	[illegible]	
12	26,27 M. 28,29	[illegible]	
13	26	[illegible]	
14	202	[illegible]	
15	201	[illegible]	
16	H. 36	[illegible]	
17	I. 26	[illegible]	
18	M. 203	[illegible]	
19	139	[illegible]	
20	488	[illegible]	
21	315	[illegible]	
22	H. [illegible]	[illegible]	
23	73	[illegible]	
24	H 201	[illegible]	
25	205	[illegible]	
26	204	[illegible]	
27	I 44	[illegible]	
28	M. 76	[illegible]	
29	208	[illegible]	
30	P 1	[illegible]	
31	M. 480	[illegible]	[illegible]
32	H. 181	[illegible]	
33	M. 187	[illegible]	
34	H. 123	[illegible]	
35	M. 182	[illegible]	
36	188	[illegible]	
37	189	[illegible]	
38	190	[illegible]	
39	244	[illegible]	
40	78	[illegible]	
41	H. 134	[illegible]	
42	M. 110	[illegible]	
43	118	[illegible]	
44	243	[illegible]	
45	446	[illegible]	
46	79	[illegible]	
47	250	[illegible]	
48	249	[illegible]	
49	H. 89	[illegible]	
50	M. 184	[illegible]	
51	89	[illegible]	
52	H. 90	[illegible]	
53	M. 124	[illegible]	
54	9	[illegible]	
55	303	[illegible]	
56	H. 209	[illegible]	
57	M. 182	[illegible]	
58	183	[illegible]	
59	15	[illegible]	
60	64	[illegible]	
60a	H 195	[illegible]	

TABLE I

I Nº	II Text Nº	III Text	IV Sign	I Nº	II Text Nº	III Text	IV Sign
61	M 66	[illegible]	[illegible]	100	M 72	[illegible]	[illegible]
62	M 192	[illegible]		101	74	[illegible]	
63	195	[illegible]		102	464	[illegible]	
64	232	[illegible]		103	173 174	[illegible]	
65	M 185	[illegible]		104	345	[illegible]	
66	161	[illegible]		105	M 157	[illegible]	
				106	M 156	[illegible]	
68	1	[illegible]		107	364	[illegible]	
69	70	[illegible]		108	374	[illegible]	
70	233	[illegible]		109	[illegible]	[illegible]	
71	463	[illegible]		110	M 6	[illegible]	
72	234	[illegible]		111	177	[illegible]	
73	462	[illegible]		112	14	[illegible]	
74	17	[illegible]		113	396	[illegible]	
75	477	[illegible]		114	33	[illegible]	
76	232	[illegible]		115	32	[illegible]	
77	M 42	[illegible]		116	M 95	[illegible]	
78	M 135	[illegible]		117	M 176	[illegible]	
79	71	[illegible]		118	M 215	[illegible]	
80	443	[illegible]		119	M 175	[illegible]	
81	M 162	[illegible]		120	178	[illegible]	
82	M 352	[illegible]		121	M 208	[illegible]	
83	238	[illegible]		122	M 220	[illegible]	
84	235	[illegible]		123	M 149	[illegible]	
85	78	[illegible]		124	M 42	[illegible]	
86	236	[illegible]		125	481	[illegible]	
87	M 163	[illegible]		126	219	[illegible]	
88	M 393	[illegible]		127	218	[illegible]	
89	M 262	[illegible]		128	344	[illegible]	
90	220	[illegible]		129	230	[illegible]	

TABLE I

I Nº	II Text Nº	III Text	IV Sign	I Nº	II Text Nº	III Text	IV Sign
130	H.75,159	[illegible]	[illegible]	160	H. 195	[illegible]	[illegible]
131	M 41	[illegible]		161	193	[illegible]	
132	H. 203	[illegible]		162	67	[illegible]	
133	M 216	[illegible]		163	69	[illegible]	
134	214	[illegible]		164	38	[illegible]	
135	215	[illegible]		165	39	[illegible]	
136	H. 93	[illegible]		166	H. 107	[illegible]	
137	M 217	[illegible]		167	H. 170	[illegible]	
138	H. 148 M. 209	[illegible]		168	171	[illegible]	
139	M 90	[illegible]		169	169	[illegible]	
140	210	[illegible]		170	40	[illegible]	
141	211	[illegible]		171	168	[illegible]	
142	388	[illegible]		172	172	[illegible]	
143	212	[illegible]		173	H. 183	[illegible]	
144	452	[illegible]		174	145	[illegible]	
145	302	[illegible]		175	M 440	[illegible]	
146	500	[illegible]		176	471	[illegible]	
147	213	[illegible]		177	223	[illegible]	
148	34,35	[illegible]		178	4	[illegible]	
149	36	[illegible]		179	3	[illegible]	
150	252	[illegible]		180	478	[illegible]	
151	136	[illegible]		181	225	[illegible]	
152	459	[illegible]		182	222	[illegible]	
153	253	[illegible]		183	224	[illegible]	
154	254	[illegible]		184	226	[illegible]	
155	306	[illegible]		185	H. 135	[illegible]	
156	394	[illegible]		186	177	[illegible]	
157	194	[illegible]		187	216	[illegible]	
158	192	[illegible]		188	170	[illegible]	
159	68	[illegible]		189	H.198,197	[illegible]	

TABLE I

I. No	II Text No	III Text	IV Sign
190	M. 199	[illegible]	[illegible]
191	382	[illegible]	
192	I. 35	[illegible]	
193	M. 75	[illegible]	
194	258	[illegible]	
195	I 7	[illegible]	
196	M. 240	[illegible]	
197	H. 187	[illegible]	
198	M. 266	[illegible]	
199	H 84	[illegible]	
200	M 227	[illegible]	
201	228	[illegible]	
202	231	[illegible]	
203	229	[illegible]	
204	230	[illegible]	
205	H. 76	[illegible]	
206	H. 159, 160	[illegible]	
207	475	[illegible]	
208	156	[illegible]	
209	157	[illegible]	
210	158	[illegible]	
211	161	[illegible]	
212	396	[illegible]	
213	162	[illegible]	
214	443	[illegible]	
215	127	[illegible]	
216	242	[illegible]	
217	223	[illegible]	
219	217	[illegible]	

I No	II Text No		III Text
220	M. 458		[illegible]
221	I. 37		[illegible]
222	M. 164		[illegible]
223	I 20		[illegible]
224	17		[illegible]
225	H. 163		[illegible]
226	166		[illegible]
227	167		[illegible]
228	⌒ 495		[illegible]
229	132	obv	[illegible]
230		rev.	[illegible]
231	97		[illegible]
232	165		[illegible]
233	251		[illegible]
234	268		[illegible]
235	M. 191		[illegible]
236	409		[illegible]
237	180		[illegible]
238	397		[illegible]
239	H. 221		[illegible]
240	M. 179		[illegible]
241	H. 91		[illegible]
242	M. 301		[illegible]
243	H 74		[illegible]
244	M. 245		[illegible]
245	246		[illegible]
246	249		[illegible]
247	H 94		[illegible]
248	175		[illegible]
249	M. 494		[illegible]

TABLE I

I No.	II Text No.	III Text	IV sign	I No.	II Text No.	III Text	IV sign
250	M. 418	[illegible]	[illegible]	280	M. 163	[illegible]	[illegible]
251	211	[illegible]		281	395	[illegible]	
252	H 213	[illegible]		282	H. 136	[illegible]	
253	95	[illegible]		283	H 442	[illegible]	
254	H 402	[illegible]		284	I 31	[illegible]	
255	210	[illegible]		285	M. 308	[illegible]	
256	499	[illegible]		286	455	[illegible]	
257	265, 479	[illegible]		287	514	[illegible]	
258	H 37	[illegible]		288	H. 78	[illegible]	
259	87	[illegible]		289	I. 5	[illegible]	
260	88	[illegible]		290	M. 372	[illegible]	
261	M. 117	[illegible]		291	583	[illegible]	
262	M. 143	[illegible]		292	I 24	[illegible]	
263	H 8	[illegible]		293	M. 259	[illegible]	
264	31, 30	[illegible]		294	258	[illegible]	
265	445	[illegible]		295	I 9	[illegible]	
266	H 150 (obv)	[illegible]		296	M. 417	[illegible]	
267	237	[illegible]		297	506	[illegible]	
268	M. 346	[illegible]		298	453	[illegible]	
269	1	[illegible]		299	491	[illegible]	
270	191	[illegible]		300	310	[illegible]	
271	203	[illegible]		301	M. 185	[illegible]	
272	H 158	[illegible]		302	M. 304	[illegible]	
273	M. 195	[illegible]		303	177	[illegible]	
274	M. 241	[illegible]		304	257	[illegible]	
275	95	[illegible]		305	62	[illegible]	
276	264	[illegible]		306	247	[illegible]	
277	323	[illegible]		307	200	[illegible]	
278	120	[illegible]		308	339	[illegible]	
279	H 168	[illegible]		309	I 9	[illegible]	

TABLE I

I Nº	II Text Nº	III Text	IV Sign	I Nº	II Text Nº	III Text	IV Sign
310	H. 211	[illegible]	[illegible]	340	H. 144	[illegible]	[illegible]
311	H 221	[illegible]		341	88	[illegible]	
312	41	[illegible]		342	H. 119	[illegible]	
313	H. 217	[illegible]		343	H 212	[illegible]	
314	H. 255	[illegible]		344	240	[illegible]	
315	81	[illegible]		345	H. 55,56	[illegible]	
316	257	[illegible]		346	21	[illegible]	
317	145	[illegible]		347	414	[illegible]	
318	442	[illegible]		348	H. 117	[illegible]	[illegible]
319	155	[illegible]		349	238	[illegible]	
320	516	[illegible]		350	250	[illegible]	
321	77	[illegible]		351	444	[illegible]	
322	83	[illegible]		352	322	[illegible]	
323	134	[illegible]		353	243	[illegible]	
324	264	[illegible]		354	240	[illegible]	
325	222	[illegible]		355	H 196	[illegible]	
326	223	[illegible]		356	209	[illegible]	
327	269	[illegible]		357	H. 291	[illegible]	
328	441	[illegible]		358	138	[illegible]	
329	H. 150	[illegible]		359	221	[illegible]	
330	156	[illegible]		360	H. 214	[illegible]	
331	46	[illegible]		361	H. 403	[illegible]	
332	H. 460	[illegible]		362	181	[illegible]	
333	461	[illegible]		363	183	[illegible]	
334	H. 92	[illegible]		364	193	[illegible]	
335	H. 152	[illegible]		365	447	[illegible]	
336	152	[illegible]		366	496	[illegible]	
337	39	[illegible]		367	H. 163	[illegible]	
338	I 4	[illegible]		368	H 263	[illegible]	
339	H. 42	[illegible]		369	H. 401	[illegible]	

TABLE I

I No.	II Text No.	III Text	IV Sign
370	M 170	[illegible]	[illegible]
371	392	[illegible]	
372	178	[illegible]	
373	318	[illegible]	
374	471	[illegible]	
375	116	[illegible]	[illegible]
376	361	[illegible]	
377	35	[illegible]	
378	127	[illegible]	
379	400	[illegible]	
380	M. 60	[illegible]	
381	M 404	[illegible]	
382	191	[illegible]	
383	108	[illegible]	
384	M. 41	[illegible] UR [illegible]	
385	72	R	
386	M. 353	[illegible]	
387	70	[illegible]	[illegible]
388	364	[illegible]	
389	133	[illegible]	
390	609	[illegible]	
391	260	[illegible]	
392	451	[illegible]	
393	65	[illegible]	
394	68	[illegible]	
395	M 40	[illegible] UR	
396	M. 355	[illegible]	
397	M. 559	[illegible]	[illegible]
398	M 619	[illegible]	[illegible]
399	122	[illegible]	
400	516	[illegible]	[illegible]

TABLE II

I No.	II Text No.	III Text	IV Sign
401	M. 91	[illegible]	[illegible]

TABLE III

I No.	II Text No.	III Text	IV Sign
1		For [illegible] and [illegible] see [illegible] table XXXVI	[illegible]
2		For [illegible] and [illegible] see [illegible] "	
3	M 112	[illegible]	
4		For [illegible] and [illegible] see [illegible] table XXXVI	
5	M. 38	[illegible]	
6	M. 146	[illegible]	[illegible]
7	131	[illegible] (obv.) [illegible] (rev.)	
8	424	[illegible]	
9	I 11	[illegible]	
10	M. 414	[illegible]	
11	H 7	[illegible]	
12	M. 149	[illegible]	
13	H. 87	(rev.) [illegible] (obv.)	
14	M 540	[illegible]	
15	41	(rev.) [illegible] (obv.)	
16	79	[illegible]	[illegible]
17	M. 118	[illegible]	[illegible]
18	M 40	(rev.) [illegible] (obv.)	[illegible]
19	M. 232	[illegible]	[illegible]
20	243	[illegible]	
21	M 163	[illegible]	
22	412	[illegible]	
23	I 28	[illegible]	[illegible]
24	M 237	[illegible]	
25	207	[illegible]	[illegible]
26	M 358	[illegible]	[illegible]
27	M 56	[illegible]	[illegible]

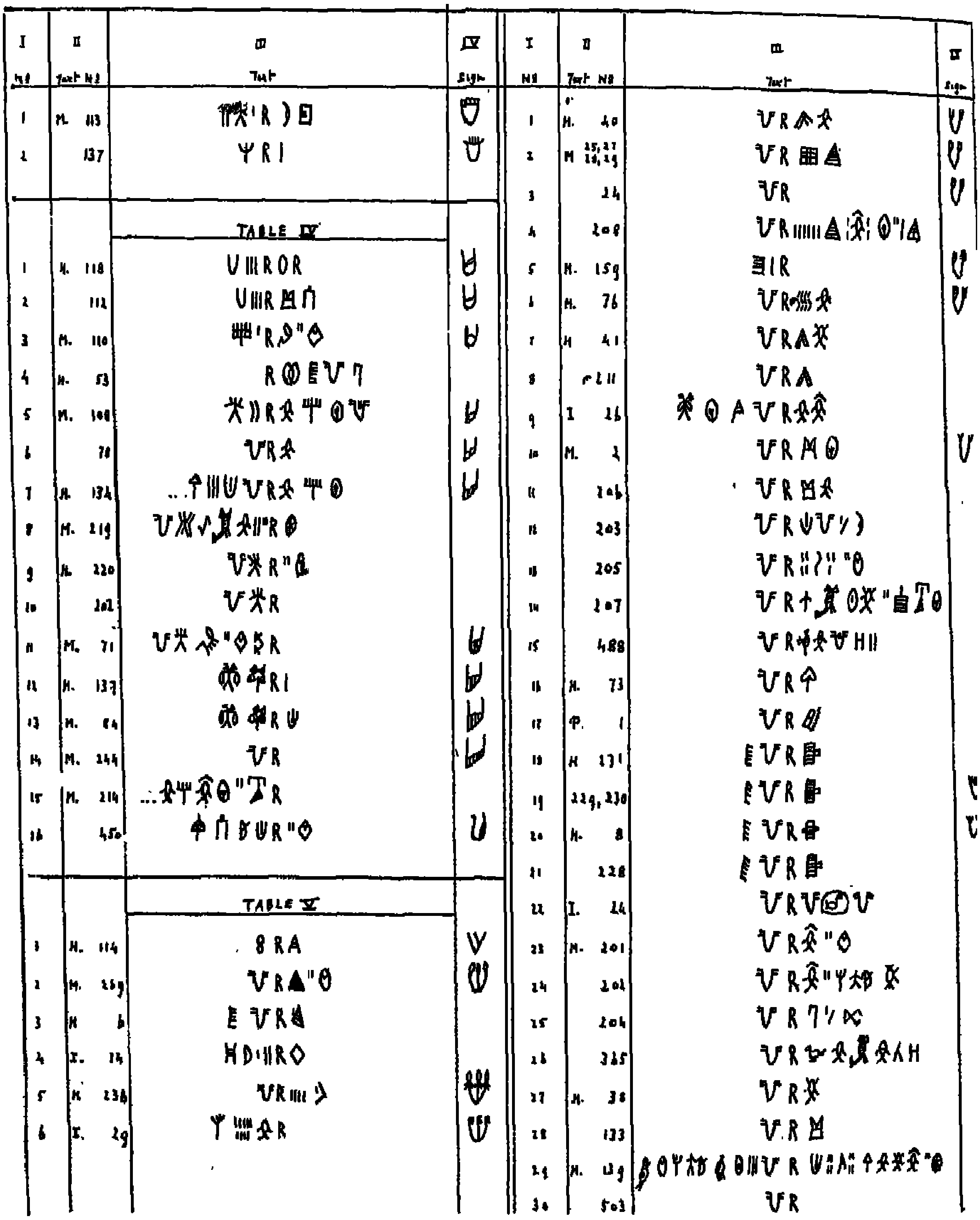


TABLE III

I No	II Text No	III Text	IV Sign
1	M. 113		
2	137		

TABLE IV

I No	II Text No	III Text	IV Sign
1	M. 118		
2	112		
3	M. 110		
4	M. 53		
5	M. 108		
6	78		
7	M. 134		
8	M. 219		
9	M. 220		
10	221		
11	M. 71		
12	M. 137		
13	M. 64		
14	M. 244		
15	M. 214		
16	450		

TABLE V

I No	II Text No	III Text	IV Sign
1	M. 114		
2	M. 259		
3	M 6		
4	I. 14		
5	M 236		
6	I. 29		

TABLE VI

I No	II Text No	III Text	IV Sign
1	M. 40		
2	M [illegible]		
3	24		
4	208		
5	M. 159		
6	M. 76		
7	M 41		
8	[illegible]		
9	I 16		
10	M. 2		
11	246		
12	203		
13	205		
14	207		
15	488		
16	M. 73		
17	P. 1		
18	M 171		
19	229, 230		
20	M. 8		
21	228		
22	I. 24		
23	M. 201		
24	202		
25	204		
26	315		
27	M. 38		
28	133		
29	M. 139		
30	503		

TABLE VI

I No	II Text No	III Text	IV Sign
31	M 449		
32	H 336		
33	M 66		
34	200		
35	319		
36		Fa. … see Tabl. I, No 31–36	

TABLE VII

I No	II Text No	III Text	IV Sign
1	M. 398		
2	328		
3	329		
4	330		
5	334		
6	335		
7	467		
8	490		
9	347		
10	H. 134		
11	M 515		
12	164		
13	I 28		
14	H. 43,44		
15	224		
16	66		
17	98		
18	103		
19	190		
20	418		
21	M 149		
22	M 373		

TABLE VII

I No	II Text No	III Text	IV Sign
23	M. 513		
24	20		
25	H 107		
26	H. 180		
27	397		
28	463		
29	H 48		
30	I. 8		
31	M 368		
32	186		
33	58		
34	8		
35	178		
36	205		
37	141		
38	426		
39	460		
40	H. 132		
41	M. 333		
42	331		
43	332		
44	336		
45	H. 190		
46	H. 54		
47	I. 15		
48	H. 216		
49	H 34,35		
50	41		
51	75		
52	308		

TABLE VII

I No.	II Text No.	III Text	IV Sign
53	M. 391	[illegible]	[illegible]
54	I. 4	[illegible]	
55	M. 390	[illegible]	
56	139	... [illegible]	
57	514	[illegible]	
58	H. 241	[illegible]	
59	M. 84	[illegible]	
60	115	[illegible]	
61	145	[illegible]	
62	I. 13	[illegible]	[illegible]
63	H. 221	[illegible]	[illegible]
64	M. 449	[illegible]	
65	143	[illegible]	
66	439	alt. [illegible] var. [illegible]	
67	310	[illegible]	[illegible]
68	H 105	[illegible]	[illegible]
69	108	[illegible]	

TABLE VIII

I No.	II Text No.	III Text	IV Sign
1	H. 15	[illegible]	[illegible]
2	M. 235	[illegible]	
3	476	[illegible]	
4	477	[illegible]	
5	405	[illegible]	

TABLE IX

I No.	II Text No.	III Text	IV Sign
1	H. 15	[illegible]	[illegible]
2	44	[illegible]	
3	M. 402	[illegible]	[illegible]
4	509	[illegible]	

TABLE X

I No.	II Text No.	III Text	IV Sign
1	M. 190	[illegible]	[illegible]
2	186	[illegible]	
3	H 239	[illegible]	
4	M. 320	[illegible]	
5	336	[illegible]	
6	H. 76	[illegible]	
7	M. 232	[illegible]	[illegible]
8	228	[illegible]	
9	2	[illegible]	
10	114	[illegible]	
11	213	[illegible]	
12	214	[illegible]	
13	515	[illegible]	
14	H 189	[illegible]	
15	H. 271	[illegible]	
16	H. 191	[illegible]	
17	M. 270	[illegible]	[illegible]
18	18	[illegible]	
19	389	[illegible]	
20	172	[illegible]	
21	207	[illegible]	
22	227	[illegible]	
23	230	[illegible]	
24	431	[illegible]	
25	474	[illegible]	
26	I. 19	[illegible]	
27	H. 330	[illegible]	
28	433	[illegible]	
29	348	[illegible]	
30	317	[illegible]	

TABLE X

I No.	II Text No.	III Text	IV Sign
31	M 305	[illegible]	[illegible]
32	302	[illegible]	
33	L. 26	[illegible]	
34	M. 108	[illegible]	
35	M. 132	[illegible]	
36	235	[illegible]	
37	184	[illegible]	[illegible]
38	L. 34	[illegible]	
39	M. 66	[illegible]	
40	27	[illegible]	
41	85	[illegible]	
42	M. 92	[illegible]	
43	109	[illegible]	
44	129	[illegible]	
45	168	[illegible]	
46	203	[illegible]	
47	M 208	[illegible]	
48	152	[illegible]	
49	116	[illegible]	
50	66	[illegible]	
51	74	[illegible]	
52	M. 123	[illegible]	
53	M 53	[illegible]	
54	92	[illegible]	
55	M 216	[illegible]	
56	M 56	[illegible]	
57	9	[illegible]	
58	M 96	[illegible]	
59	97	[illegible]	
60	179	[illegible]	

TABLE X

I No.	II Text No.	III Text	IV Sign
61	H. 14	[illegible]	[illegible]
62	M 308	[illegible]	[illegible]
63	168	[illegible]	[illegible]
64	229	[illegible]	[illegible]
65	350	[illegible]	[illegible]
66	350	[illegible]	[illegible]

TABLE XI

I No.	II Text No.	III Text	IV Sign
1	M. 7	[illegible]	[illegible]
2	286	[illegible]	[illegible]
3	31	[illegible]	
4	148	[illegible]	
5	H 97	[illegible]	
6	M. 124	[illegible]	[illegible]
7	182	[illegible]	
8	183	[illegible]	
9	H. 195	[illegible]	
10	M. 466	[illegible]	
11	194	[illegible]	
12	H. 196	[illegible]	
13	H. 216	[illegible]	
14	358	[illegible]	
15	357	[illegible]	
16	504	[illegible]	
17	417	[illegible]	
18	440	[illegible]	
19	289	[illegible]	
20	498	[illegible]	
21	138	[illegible]	
22	H 192	[illegible]	[illegible]

TABLE XI

I No.	II Text No.	III Text	IV Sign
23	M 161	[illegible]	[illegible]
24	I. 1	[illegible]	
25	M. 62	[illegible]	[illegible]
26	8	[illegible]	
27	M 197	[illegible]	
28	M. 510	[illegible]	
29	181	[illegible]	
30	M. 232	[illegible]	
31	M. 292	[illegible]	[illegible]
32	" 128	[illegible]	[illegible]
33	283, 284	[illegible]	[illegible]
34	I. 22	[illegible]	
35	M. 185	[illegible]	
36	502	[illegible]	
37	I. 8	[illegible]	
38	M. 287	[illegible]	
39	290	[illegible]	
40	291	[illegible]	
41	294	[illegible]	
42	295	[illegible]	
43	296	[illegible]	
44	293	[illegible]	
45	493	[illegible]	
46	297, 298	[illegible]	
47	299	[illegible]	
48	240	[illegible]	
49	M 83	[illegible]	
50	198,	[illegible]	
51	90	[illegible]	
52	110	[illegible]	

TABLE XI

I No.	II Text No.	III Text	IV Sign
53	M. 303	[illegible]	[illegible]
54	M. 209	[illegible]	
55	161	[illegible]	
56	M 305	[illegible]	
57	307	[illegible]	
58	370	[illegible]	
59	177	[illegible]	
60	171	[illegible]	
61	185	[illegible]	
62	202	[illegible]	
63	253	[illegible]	
64	139	[illegible]	[illegible]
65	M. 209	[illegible]	
67	M. 410	[illegible]	[illegible]
68	310	[illegible]	[illegible]
69	46	[illegible]	[illegible]
70	9	[illegible]	
71	184	[illegible]	
72	M. 14	[illegible]	
73	96	[illegible]	
74	210	[illegible]	
75	216	[illegible]	
76	M. 65	[illegible]	
77	88	[illegible]	
78	289	[illegible]	
79	87	[illegible]	
80	I. 29	[illegible]	
81	M. 249	[illegible]	
82	I. 15	[illegible]	

TABLE XI

I Nº	II Text Nº		III Text	IV Sign
83	M. 306		[illegible]	[illegible]
84	302		[illegible]	[illegible]
85	86		[illegible]	
86	89		[illegible]	
87	51, 51		[illegible]	[illegible]
88	96		[illegible]	
89	97		[illegible]	
90	98		[illegible]	
91	M 127		[illegible]	
92	179		[illegible]	
93	M 54		[illegible]	
94	42-49		[illegible]	
95	I. 16		[illegible]	
96	M. 53		[illegible]	
97	M 45		[illegible]	
98	46		[illegible]	
99	M. 91		[illegible]	
100	90		[illegible]	
101	301		[illegible]	
102	64		[illegible]	
103	57		[illegible]	
104	M 151	obv	[illegible]	
105		rev.	[illegible]	
106	M. 93		[illegible]	
107	92		[illegible]	
108	206		[illegible]	
109	71		[illegible]	
110	43-46		[illegible]	
111	312		[illegible]	[illegible]
112	309		[illegible]	[illegible]

TABLE XI

I Nº	II Text Nº	III Text	IV Sign
113	I. 31	[illegible]	[illegible]
114	M. 143	[illegible]	[illegible]
115	311	[illegible]	[illegible]
116			

TABLE XII

I Nº	II Text Nº	III Text	IV Sign
1	M. 4	[illegible]	[illegible]
2	10	[illegible]	
3	M 130	[illegible]	[illegible]
4	M. 410	[illegible]	[illegible]
5	318	[illegible]	[illegible]
6	104	[illegible]	[illegible]
7	M 160	[illegible]	[illegible]
8	179	[illegible]	
9	501	[illegible]	
10	I. 36	[illegible]	
11	M. 376	[illegible]	
12	375	[illegible]	
13	377	[illegible]	
14	379	[illegible]	
15	103	[illegible]	
16	I 35	[illegible]	
17	M. 311	[illegible]	
18	I. 30	[illegible]	
19	M. 380	[illegible]	
20	M. 181	[illegible]	

TABLE XIII

I No	II Text No	III Text	IV Sign
1	M. 3	[illegible]	[illegible]
2	5	[illegible]	[illegible]
3	333	[illegible]	[illegible]
4	64	[illegible]	
5	I. 35	[illegible]	
6	H 99	[illegible]	
7	M. 419	[illegible]	
8	94	[illegible]	
9	126	[illegible]	
10	338	[illegible]	
11	I. 34	[illegible]	
12	[illegible]	[illegible]	
13	M. 214	[illegible]	
14	314	[illegible]	
15	264	[illegible]	
16	148	[illegible]	
17	M. 225	[illegible]	
18	134	[illegible]	
19	H 313	[illegible]	
20	315	[illegible]	
21	316	[illegible]	
22	329	[illegible]	
23	330	[illegible]	
24	54	[illegible]	
25	I 15	[illegible]	
26	H 44	[illegible]	
27	219	[illegible]	
28	M. 405	[illegible]	
29	318	[illegible]	
30	I. 32	[illegible]	

TABLE XIII

I No	II Text No	III Text	IV Sign
31	M. 317	[illegible]	[illegible]
32	453	[illegible]	
33	504	[illegible]	
34	492	[illegible]	
35	H. 118	[illegible]	
36	M 460	[illegible]	
37	403	[illegible]	
38	323	[illegible]	
39	322	[illegible]	
40	319	[illegible]	
41	320	[illegible]	
42	321	[illegible]	
43	343	[illegible]	
44	165	[illegible]	
45	469	[illegible]	
46	279	[illegible]	
47	332	[illegible]	
48	I. 31	[illegible]	
49	H. 73	[illegible]	
50	212	[illegible]	
51	305	[illegible]	
52	211	[illegible]	
53	149	[illegible]	
54	K. 173	[illegible]	
55	208	[illegible]	
56	M. 218	[illegible]	
57	219	[illegible]	
58	315	[illegible]	
59	240	[illegible]	
60	M. 149	[illegible]	

TABLE XIII							
I Nº	II Text Nº	III Text	IV Sign	I Nº	II Text Nº	III Text	IV Sign
61	I 5	[illegible]	[illegible]	91	478	[illegible]	[illegible]
62	H 78	[illegible]		92	I 3	[illegible]	
63	M 514	[illegible]		93	M 393	[illegible]	
64	78	[illegible]		94	452	[illegible]	
65	06	[illegible]		95	129	[illegible]	
66	103	[illegible]		96	4	[illegible]	
67	194	[illegible]		97	58	[illegible]	
68	167	[illegible]		98	157	[illegible]	
69	206	[illegible]		99	158	[illegible]	
70	258	[illegible]		100	63	[illegible]	
71	16	obv. [illegible]		101	49	[illegible]	
72		rev. [illegible]		102	340	[illegible]	
73	356	[illegible]		103	I 19	[illegible]	
74	354	[illegible]		104	M 482	[illegible]	
75	366	[illegible]		105	I 38	[illegible]	
76	H 88	obv. [illegible] rev. [illegible]		106	M 370	[illegible]	
77	I 17	[illegible]		107a	371	[illegible]	
78	M 47-49	[illegible]		108	372	[illegible]	
79	I 29	[illegible]		109	373	[illegible]	
80	26	[illegible]		110	374	[illegible]	
81	M 161	[illegible]		111	H 152	[illegible]	
82	217	[illegible]		112	I 6	[illegible]	
83	95	[illegible]		113	H 180	[illegible]	[illegible]
84	I 2	[illegible]		114	M 104	[illegible]	
85	H 172	[illegible]		115	H 193	[illegible]	
86	186	[illegible]		116	M 334	[illegible]	
87	I 1	[illegible]		117	229	[illegible]	
88	M 4	[illegible]		118	152	[illegible]	
89	93	[illegible]		119	327	[illegible]	
90	218	[illegible]		120	433	[illegible]	

TABLE XIII

I No	II Text No	III Text	IV Sign
121	M. 119	... [illegible]	[illegible]
122	507	[illegible]	
123	H 127	[illegible]	
124	123	[illegible]	
125	M. 32	[illegible]	
126	121	[illegible]	
127	474	[illegible]	
128	488	[illegible]	
129	43	[illegible]	
130	256	[illegible]	
131	119	[illegible]	
132	M. 91	[illegible]	[illegible]
133	M. 501	[illegible]	[illegible]
134	H. 179	[illegible]	
135	M. 156	[illegible]	
136	I. 36	[illegible]	
137	M. 155	[illegible]	
138	103	[illegible]	
139	331	[illegible]	
140	347	[illegible]	
141	490	[illegible]	
142	335	[illegible]	
143	190	[illegible]	
144	186	[illegible]	
145	39	[illegible]	
146	38	[illegible]	
147	38	[illegible]	
148	210	[illegible]	
149	302	[illegible]	
150	H 214	[illegible]	
151	M. 348	[illegible]	[illegible]
152	325	[illegible]	
153	324	[illegible]	
154	481	[illegible]	
155	365	[illegible]	
156	238	[illegible]	
157	460	[illegible]	
158	467	[illegible]	
159	256	[illegible]	
160	474	[illegible]	
161	121	[illegible]	
162	109	[illegible]	
163	76	[illegible]	
164	80	[illegible]	
165	I 16	[illegible]	
166	M. 73	[illegible]	
167	235	[illegible]	
168	62	[illegible]	
169	457	[illegible]	
170	H. 178	[illegible]	
171	113	[illegible]	
172	240	[illegible]	
173	M. 455	[illegible]	
174	388	[illegible]	
175	M 380	[illegible]	
176	226	[illegible]	
177	424	[illegible]	
178	446	[illegible]	
179	252	[illegible]	
179a	369	[illegible]	

TABLE XIII

TABLE XIII

1 No.	c Text No.	a Text	d Sign	2 No.	b Text No.	a Text	d Sign
180	M 471	[illegible]	[illegible]	211	M. 344	[illegible]	[illegible]
181	336	[illegible]		212	150	[illegible]	
182	208	[illegible]		213	139	[illegible]	
183	98	[illegible]		214	218	[illegible]	
184	77	[illegible]		215	369	[illegible]	
185	4	[illegible]		216	395	[illegible]	
186	M 93	[illegible]		217	418	[illegible]	
187	97	[illegible]		218	M. 189	[illegible]	
189	M. 184	[illegible]		219	200	[illegible]	
190	M 90	[illegible]		220	136	[illegible]	
191	M. 124	[illegible]		221	M. 109	[illegible]	
192	303	[illegible]		222	151	[illegible]	
193	89	[illegible]		223	201	[illegible]	
194	43-46	[illegible]		224	202	[illegible]	
195	75	[illegible]		225	425	[illegible]	
196	467	[illegible]		226	422	[illegible]	
197	308	[illegible]		227	364	[illegible]	
198	159, 160	[illegible]		228	I. 31	[illegible]	
199	425	[illegible]		229	M. 8	[illegible]	
200	328	[illegible]		230	M. 179	[illegible]	
201	378	[illegible]		231	M. 501	[illegible]	
202	327	[illegible]		232	490	[illegible]	
203	214	[illegible]		233	I. 16	[illegible]	
204	314	[illegible]		234	M. 80	[illegible]	
205	400	[illegible]		235	238	[illegible]	
206	M 181	[illegible]		236	M 177	[illegible]	
207	M 361	[illegible]		237	I. 26	[illegible]	
208	M 335	[illegible]		238	M 96	[illegible]	
209	M 409	[illegible]		239	M. 453	[illegible]	
210	166	[illegible]		240	127	[illegible]	

TABLE XIII

I No.	II Text No.	III Text	IV Sign
241	M 460	[illegible]	[illegible]
242	461	[illegible]	
243	H 127	[illegible]	
244	M 507	[illegible]	
245	161	[illegible]	
246	231	[illegible]	[illegible]
247	484	[illegible]	[illegible]
248	406	[illegible]	
249	363	[illegible]	[illegible]
250	375	[illegible]	
251	326	[illegible]	
252	491	[illegible]	
253	H 43	[illegible]	
254	M 469	[illegible]	
255	332	[illegible]	
256	418	[illegible]	
257	279	[illegible]	
258	165	[illegible]	
259	H 119	[illegible]	
260	H 62	[illegible]	
261	215	[illegible]	
262	457	[illegible]	
263	H 178	[illegible]	
264	M 485	[illegible]	
265	388	[illegible]	
266	318	[illegible]	
267	317	[illegible]	
268	74	[illegible]	
269	335	[illegible]	
270	313	[illegible]	

TABLE XIII

I No.	II Text No.	III Text	IV Sign
271	M 17	[illegible]	
272	245	[illegible]	
273	H 7	[illegible]	
274	67	[illegible]	
275	15	[illegible]	
276	74	[illegible]	
277	75	[illegible]	
278	159	[illegible]	
279	40	[illegible]	
280	41	[illegible]	
281	M 482	[illegible]	
282	H 176	[illegible]	
283	M 236	[illegible]	
284	H 163	[illegible]	
285	209	[illegible]	
286	M 500	[illegible]	
287	306	[illegible]	[illegible]
288	H 93	[illegible]	[illegible]
289	M 217	[illegible]	
290	H 38	[illegible]	
291	M 200	[illegible]	
292	197	[illegible]	
293	207	[illegible]	
294	486	[illegible]	
295	H 184	[illegible]	
296	187	[illegible]	
297	M 367	[illegible]	
298	213	[illegible]	
299	305	[illegible]	
300	50	[illegible]	

TABLE XIII

TABLE XV

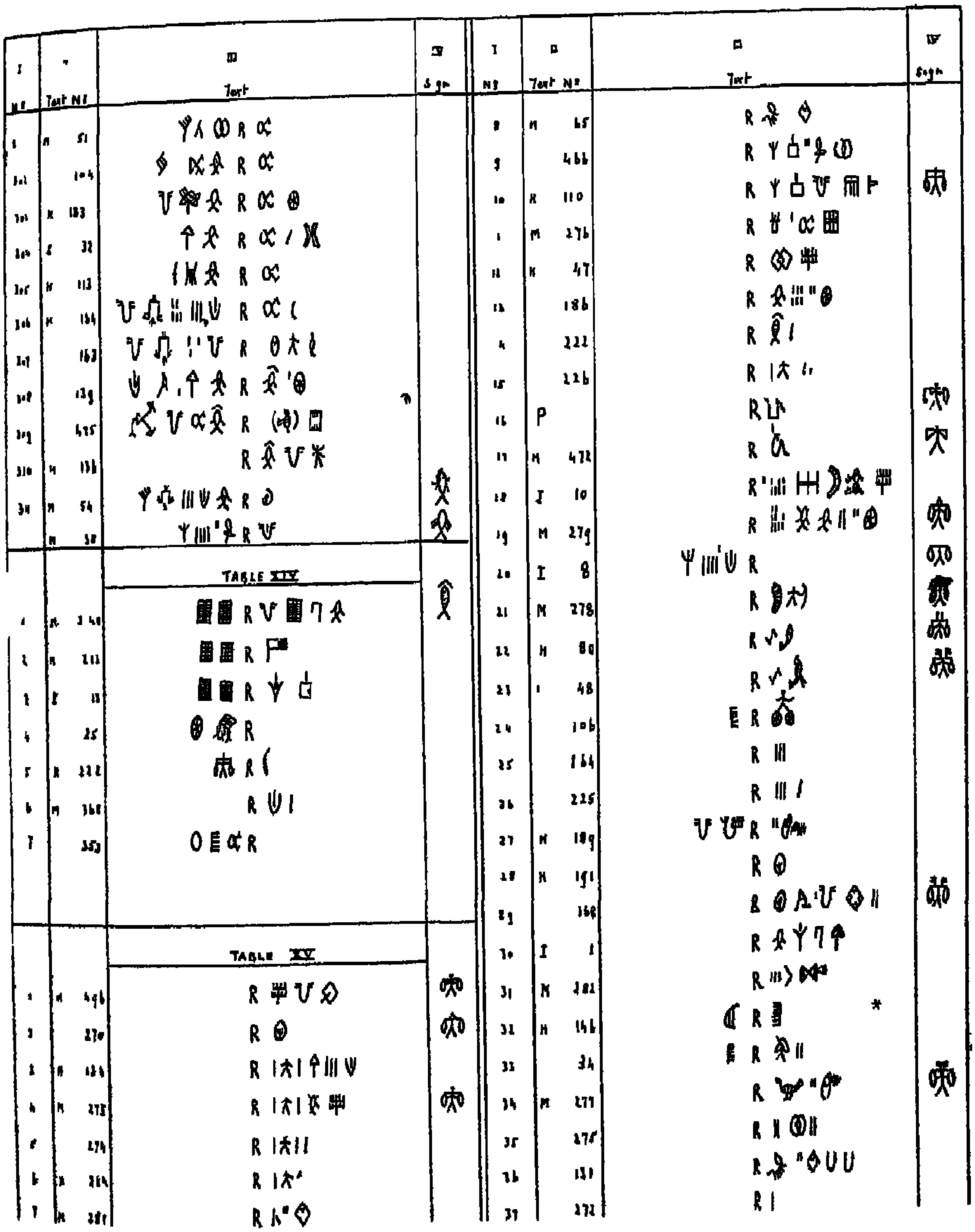


TABLE XV

I No.	II Text No.	III Text	IV Sign
38	M. 280	[illegible]	[illegible]
39	M. 128	[illegible]	
40	158	[illegible]	[illegible]
41	M. 84	[illegible]	[illegible]
42	M. 137	[illegible]	
43	129	[illegible]	
44	M. 85	[illegible]	
45	M. 109	[illegible]	[illegible]
46	92	[illegible]	
47	I. 26	[illegible]	
48	M. 271	[illegible]	
49	351	[illegible]	
50	M. 36, 75	[illegible]	
51	105	[illegible]	
52	M. 476	[illegible]	

TABLE XVI

I No.	II Text No.	III Text	IV Sign
1	M. 412	[illegible]	[illegible]
2	487	[illegible]	[illegible]
3	M. 43	[illegible]	
4	215	[illegible]	
5	232	[illegible]	
6	M. 214	[illegible]	
7	313	[illegible]	
8	338	[illegible]	
9	126	[illegible]	
10	233	[illegible]	
11	463	[illegible]	
12	147	[illegible]	[illegible]

TABLE XVI

I No.	II Text No.	III Text	IV Sign
13	M. 1	[illegible]	[illegible]
14	477	[illegible]	
15	70	[illegible]	
16	462	[illegible]	
17	234	[illegible]	
18	232	[illegible]	
19	17	[illegible]	
20	M. 74	[illegible]	
21	M. 371	[illegible]	
22	94	[illegible]	
23	M. 99	[illegible]	
24	M. 419	[illegible]	
25	I. 35	[illegible]	
26	M. 5	[illegible]	
27	64	[illegible]	
28	329	[illegible]	
29	333	[illegible]	
30	M. 139	[illegible]	
31	139	[illegible]	
32	141	[illegible]	
33	M. 314	[illegible]	
34	316	[illegible]	
35	244	[illegible]	
36	I. 18	[illegible]	
37	M. 108	[illegible]	
38	I. 34	[illegible]	
39	M. 315	[illegible]	[illegible]
40	M. 134	[illegible]	
41	M. 497	[illegible]	[illegible]
42	154	[illegible]	[illegible]

TABLE XVI

I No	II Text No	III Text	IV Sign
43	M. 110	[illegible]	[illegible]
44	489	[illegible]	
45	496	[illegible]	[illegible]
46	I. 10	[illegible]	[illegible]
47	M. 191	[illegible]	[illegible]
48	468	[illegible]	[illegible]

TABLE XVII

I No	II Text No	III Text	IV Sign
1	M. 516	[illegible]	[illegible]
2	442	[illegible]	
3	486	[illegible]	
4	414	[illegible]	
5	376	[illegible]	
6	462	[illegible]	
7	162	[illegible]	
8	391	[illegible]	
9	161	[illegible]	[illegible]
10	178	[illegible]	
11	M. 147	[illegible]	
12	M. 339	[illegible]	
13	448	[illegible]	
14	363	[illegible]	
15	M. 131	[illegible]	[illegible]
16	111	[illegible]	
17	M. 127	[illegible]	

TABLE XVIII

I No	II Text No	III Text	IV Sign
1	M. 83	[illegible]	[illegible]
2	M. 194	[illegible]	
3	210	[illegible]	

TABLE XIX

I No	II Text No	III Text	IV Sign
1	I. 9	[illegible]	[illegible]
2	M. 232	[illegible]	[illegible]
3	M. 43	[illegible]	[illegible]
4	218	[illegible]	[illegible]
5	344	[illegible]	[illegible]
6	230	[illegible]	[illegible]
7	219	[illegible]	[illegible]
8	M. 189	[illegible]	[illegible]
9	M. 220	[illegible]	[illegible]
10	481	[illegible]	[illegible]
11	M. 208	[illegible]	[illegible]
12	M. 177	[illegible]	[illegible]
13	M. 48	[illegible]	[illegible]
14	80	[illegible]	[illegible]
15	M. 397	[illegible]	[illegible]
16	M. 91	[illegible]	[illegible]
17	M. 180	[illegible]	[illegible]
18	M. 175	[illegible]	[illegible]
19	381	[illegible]	[illegible]
20	M. 221	[illegible]	[illegible]
21	M. 207	[illegible]	[illegible]
22	231	[illegible]	[illegible]
23	I. 12	[illegible]	[illegible]
24	M. 139	[illegible]	[illegible]

TABLE XIX

I Nº	II Text Nº	III Text	IV Sign
25	M. 365	[illegible]	[illegible]
26	361	[illegible]	[illegible]
27	150	[illegible]	[illegible]
28	404	[illegible]	[illegible]
29	341	[illegible]	[illegible]
30	510	[illegible]	[illegible]

TABLE XX

I Nº	II Text Nº	III Text	IV Sign
1	M. 171	[illegible]	[illegible]
2	M. 392	[illegible]	[illegible]
3	404	[illegible]	[illegible]

TABLE XXI

I Nº	II Text Nº	III Text	IV Sign
1	M. 303	[illegible]	[illegible]
2	M. 90	[illegible]	[illegible]
3	M. 184	[illegible]	[illegible]
4	89	[illegible]	
5	124	[illegible]	
6	185	[illegible]	
7	5	[illegible]	
8	M. 14	[illegible]	
9	96	[illegible]	
10	97	[illegible]	
11	198	[illegible]	
12	M. 181	[illegible]	
13	182	[illegible]	
14	240	[illegible]	
15	34	[illegible]	
16	66	[illegible]	

TABLE XXI

I Nº	II Text Nº	III Text	IV Sign
17	M. 183	[illegible]	[illegible]
18	M. 192	[illegible]	
19	195	[illegible]	
20	209	[illegible]	
21	210	[illegible]	
22	232	[illegible]	
23	89	[illegible]	
24	M. 410	[illegible]	
25	466	[illegible]	
26	M. 110	[illegible]	
27	M. 91	[illegible]	
28	360	[illegible]	
29	326	[illegible]	
30	463	[illegible]	
31	I. 13	[illegible]	
32	M. 48	[illegible]	
33	165	[illegible]	
34	138	[illegible]	
35	M. 435	[illegible]	
36	M. 116	[illegible]	
37	M. 164	[illegible]	
38	386	[illegible]	
39	511	[illegible]	
40	M. 35, 36	[illegible]	
41	169	[illegible]	
42	130	[illegible]	
43	M. 54, 55	[illegible]	[illegible]
44	51	[illegible]	
45	115	[illegible]	
46	449	[illegible]	[illegible]

TABLE XXI

TABLE XXIV

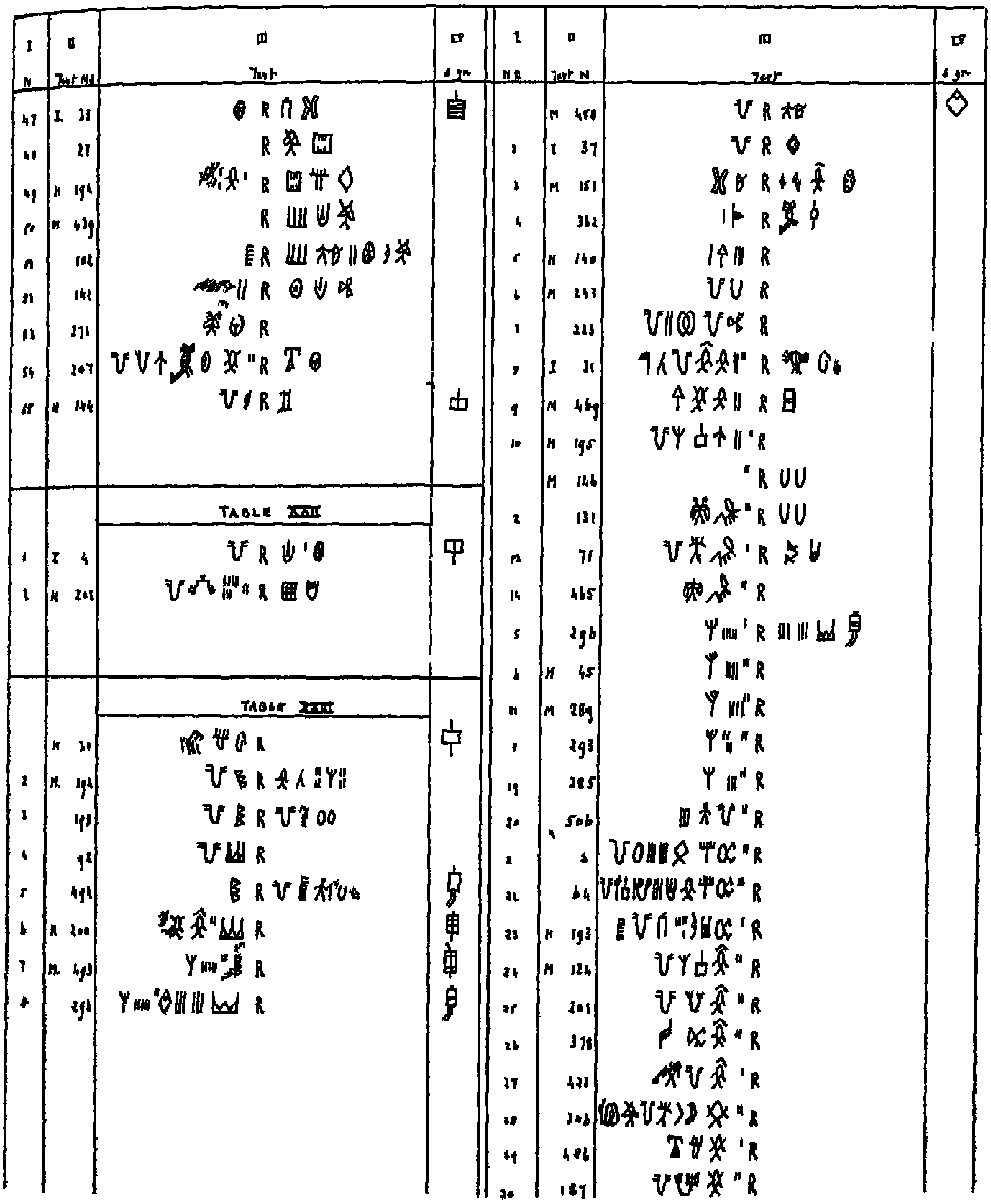


TABLE XXIV

I No	II Text No	III Text	IV Sign
31	H 95	[illegible]	◇
32	M. 446	[illegible]	
33	479	[illegible]	
34	180	[illegible]	
35	397	[illegible]	
36	I. 20	[illegible]	
37	M 190	[illegible]	
38	H. 123	[illegible]	
39	M 308	[illegible]	
40	264	[illegible]	
41	281	[illegible]	
42	329	[illegible]	
43	450	[illegible]	
44	H. 124	[illegible]	
45	48	[illegible]	
46	M. 197	[illegible]	[illegible]
47	514	[illegible]	◇
48	447	[illegible]	[illegible]
49	162	[illegible]	[illegible]
50	H 167	[illegible]	[illegible]
51	M 165	[illegible]	[illegible]
52	385	[illegible]	
53	331	[illegible]	
54	267	[illegible]	
55	432	[illegible]	
56	289	[illegible]	
57	294	[illegible]	
58	323	[illegible]	
59	324	[illegible]	
60	331	[illegible]	

TABLE XXV

I No	II Text No	III Text	IV Sign
61	M. 163	[illegible]	[illegible]
62	H. 190	[illegible]	
63	M 103	[illegible]	
64	467	[illegible]	
65	H. 180	[illegible]	
66	M. 315	[illegible]	
67	500	[illegible]	
68	H. 93	[illegible]	
69	M 492	[illegible]	
70	I. 3	[illegible]	
71	H. 182	[illegible]	
72	181	[illegible]	
73	189	[illegible]	
74	223	[illegible]	
75	M 462	[illegible]	
76	83	[illegible]	
77	82	[illegible]	
78	269	[illegible]	
79	101	[illegible]	
80	176	[illegible]	
81	196	[illegible]	
82	205	[illegible]	
83	277	[illegible]	
84	304	[illegible]	
85	312	[illegible]	
86	318	[illegible]	
87	413	[illegible]	
88	420	[illegible]	
89	445	[illegible]	
90	487	[illegible]	

TABLE XXIV

I Nr	II Text No	III Text	IV Sign
[illegible]	M 179	[illegible] R	[illegible]
[illegible]	120	[illegible] R	
[illegible]	I 32	[illegible] R	
[illegible]	H 6	[illegible] R	
[illegible]	H 407	[illegible] R	
[illegible]	319	[illegible] R	
[illegible]	H 38	[illegible] R	
[illegible]	139	[illegible] R [illegible]	
[illegible]	261	[illegible] R [illegible]	
[illegible]	406	R [illegible]	
[illegible]	H 234	R [illegible]	
[illegible]	H 164	[illegible]	
[illegible]	P 5	R [illegible]	[illegible]
[illegible]	M 129	[illegible] R	
[illegible]	I 109	[illegible] R	
[illegible]	H 327	[illegible] R	
[illegible]	119	[illegible] R	
[illegible]	495	[illegible] R	
[illegible]	H 186	[illegible] R	
[illegible]	H 390	[illegible] R	
[illegible]	H 185	[illegible] R	
[illegible]	H 73	[illegible] R	
[illegible]	279	[illegible] R	
[illegible]	212	[illegible] R	
[illegible]	H 150	[illegible] R	
[illegible]	H 469	[illegible] R	
[illegible]	417	[illegible] R	
[illegible]	65	[illegible] R	
[illegible]	169	[illegible] R	
[illegible]	169	[illegible] R	

TABLE XXIV

I Nr	II Text No	III Text	IV Sign
121	M 172	[illegible] R	[illegible]
122	317	[illegible] R	
123	234	[illegible] R	
124	258	[illegible] R	
125	268	[illegible] R	
126	330	[illegible] R	
127	I 4	[illegible] R	
128	M 158	[illegible] R	
129	490	[illegible] R	
130	103	[illegible] R	
131	315	[illegible] R	
132	400	[illegible] R	
133	199	[illegible] R	
134	442	[illegible] R	
135	H 183	[illegible] R	
136	187	[illegible] R	
137	M 395	[illegible] R	
138	121	[illegible] R	
139	79	[illegible] R	
140	74	[illegible] R	
141	72	[illegible] R	
142	449	R [illegible]	
143	P 3	[illegible] R	
144	M 310	[illegible] R	
145	I 33	R [illegible]	
146	M 511	[illegible] R	
147	464	[illegible] R	
148	354	[illegible] R	
149	219	[illegible] R	
150	134	[illegible] R R	

TABLE XXIV

I No.	II Text No.		III Text	IV Sg
151	M	307	[illegible]	
152		115	[illegible]	
153		102	[illegible]	
154		383	[illegible]	
155		403	[illegible]	
156	I	25	[illegible]	
157	M	107	[illegible]	[illegible]
158		69	[illegible]	[illegible]
159		248	[illegible]	[illegible]
160		504	[illegible]	

TABLE XXV

I No.	II Text No.		III Text	IV Sg
1	M	116	[illegible]	[illegible]
2		182	[illegible]	
3		429	[illegible]	
4		161	[illegible]	
5	M	15	[illegible]	
6		74	[illegible]	
7		173	[illegible]	[illegible]
8		168	[illegible]	
9	M	120	[illegible]	
10		401	[illegible]	
11		459	[illegible]	
12		497	[illegible]	
13		498	[illegible]	
14	I	37	[illegible]	

TABLE XXVI

I No.	II Text No.		III Text	IV Sign
	M	8	[illegible]	[illegible]
2		289	[illegible]	
3	H	112	[illegible]	
4		194	[illegible]	
5	I	14	[illegible]	
6		29	[illegible]	
7	M	5	[illegible]	[illegible]
8	M	166	[illegible]	
9	[illegible]	252	[illegible]	
10		36	[illegible]	
11		477	[illegible]	
12	M	119	[illegible]	
13	M	193	[illegible]	
14		415	[illegible]	
15	M	90	nov [illegible]	
16		22	[illegible]	
17		84	[illegible]	
18		21	[illegible]	
19	M	353	[illegible]	[illegible]
20	H	115	[illegible]	[illegible]
21		30	[illegible]	
22	M	357	[illegible]	[illegible]
23		416	[illegible]	[illegible]
24		342	[illegible]	
25	I	54	[illegible]	[illegible]
26	M	109	[illegible]	
27		411	[illegible]	
28		207	[illegible]	
29		425	[illegible]	
30		374	[illegible]	

TABLE XXVI

I N°	II Text N°	III Text	IV Sign
[illegible]	118	[illegible] R	[illegible]
[illegible]	54	[illegible] R [illegible]	
[illegible]	3	R [illegible]	
[illegible]	141	[illegible] R [illegible]	[illegible]
[illegible]	216	[illegible] R [illegible]	[illegible]
[illegible]	155	[illegible] R [illegible]	
[illegible]	499	[illegible] R [illegible]	[illegible]
[illegible]	139	[illegible] R [illegible]	[illegible]
[illegible]	496	[illegible] R	[illegible]
[illegible]	460	[illegible] R	[illegible]
[illegible]	515	R [illegible]	
[illegible]	433	R [illegible]	[illegible]
[illegible]	52	[illegible] R	[illegible]
[illegible]	417	R [illegible]	[illegible]
[illegible]	414	[illegible] R [illegible]	[illegible]
[illegible]	170	[illegible] R	[illegible]
[illegible]	225	[illegible]	[illegible]
[illegible]	214	[illegible]	
[illegible]	215	[illegible]	
[illegible]	308	[illegible]	
[illegible]	402	[illegible]	
[illegible]	427	[illegible]	
[illegible]	419	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	220	[illegible] R	[illegible]
[illegible]	468	[illegible]	[illegible]
[illegible]	195	[illegible] R	[illegible]
[illegible]	117	[illegible] R [illegible]	[illegible]
[illegible]	225	[illegible] R	[illegible]

TABLE XXVII

I N°	II Text N°	III Text	IV Sign
1	M 382	R [illegible]	[illegible]
2	235	R [illegible]	[illegible]
3	H 85	R [illegible]	[illegible]
4	86	R [illegible]	[illegible]
5	I 19	R [illegible]	[illegible]
6	M 409	R [illegible]	[illegible]
7	M 201	[illegible] R	[illegible]
8	M 356	[illegible] R	[illegible]
9	381	R [illegible]	[illegible]
10	403	R [illegible]	[illegible]
11	I 31	[illegible] R	[illegible]
12	12	[illegible] R [illegible]	
13	H 131	[illegible] R [illegible]	
14	M 393	[illegible] R	
15	H 82	obv [illegible] R R [illegible]	[illegible]
16	M 20	R [illegible]	[illegible]
17	H 147	[illegible] R [illegible]	[illegible]
18	H 304	[illegible] R [illegible]	[illegible]

TABLE XXVIII

I N°	II Text N°	III Text	IV Sign
1	M 23	R [illegible]	[illegible]
2	H 153	obv [illegible] R [illegible] rev [illegible] R [illegible]	[illegible]
3	154	[illegible] R [illegible]	
4	39	obv [illegible] rev [illegible] R	[illegible]

TABLE XXIX

I No	II Text No	III Text	IV Sign
1		For [illegible] etc. see Table XL	
2		For [illegible] etc. see Table XLI	1
3	I. 10	[illegible]	
4	19	[illegible]	
5	M. 180	[illegible]	
6	344	[illegible]	
7	510	[illegible]	
8	H. 218	[illegible]	
9	M. 88	[illegible]	
10	142	[illegible]	
11	400	[illegible]	
12	402	[illegible]	
13	91	[illegible]	
14	110	[illegible]	
15	72	[illegible]	
16	74	[illegible]	
17	79	[illegible]	
18	121	[illegible]	
19	449	[illegible]	
20	H. 183	[illegible]	
21	187	[illegible]	
22	H 491	[illegible]	
23	89	[illegible]	
24	P. 5	[illegible]	1
25	H. 310	[illegible]	
26	90	[illegible]	
27	257	[illegible]	
28	H 149	[illegible]	
29	210	[illegible]	
30	H 447	[illegible]	
31	M. 462	[illegible]	1
32	403	[illegible]	
33	85	[illegible]	
34	470	[illegible]	
35	I. 14	[illegible]	

TABLE XXX

I No	II Text No	III Text	IV Sign
1	M 264	[illegible]	
2	H. 210	[illegible]	
3	201	[illegible]	
4	M. 482	[illegible]	
5	H 367	[illegible]	
6	M. 370	[illegible]	
7	202	[illegible]	
8	171	[illegible]	
9	218	[illegible]	
10	249	[illegible]	
11	A. 216	[illegible]	
12			
13			
14	M. 446	[illegible]	
15	71	[illegible]	
16	131	[illegible]	
17	146	[illegible]	
18	187	[illegible]	
19	296	[illegible]	
20	469	[illegible]	
21	H. 197	[illegible]	

TABLE XXX

I No.	II Text No.	III Text	IV Sign
22	I 21	[illegible]	"
23	M 163	[illegible]	
24	311	[illegible]	
25	432	[illegible]	
26	H 190	[illegible]	
27	M 449	[illegible]	
28	188	[illegible]	
29	151	[illegible]	
30	116	[illegible]	
31	63	[illegible]	
32	158	[illegible]	
33	162	[illegible]	
34	302	[illegible]	
35	466	[illegible]	
36	H 40	[illegible]	
37	M 463	[illegible]	
38	H 312	[illegible]	
39	M 155	[illegible]	
40	357	[illegible]	
41	110	[illegible]	
42	M. 239	[illegible]	
43	H 10	[illegible]	
44	H 130	[illegible]	
45	H 15	[illegible]	
46	186	[illegible]	
47	69	[illegible]	
48	214	[illegible]	
49	308	[illegible]	
50	115	[illegible]	
51	208	[illegible]	

TABLE XXX

I No.	II Text No.	III Text	IV Sign
52	M. 485	[illegible]	"
53	393	[illegible]	
54	135	[illegible]	
55	299	[illegible]	
56	H 188	[illegible]	
57	M 469	[illegible]	
58	189	[illegible]	
59	207	[illegible]	
60	H 194	[illegible]	
61	M. 452	[illegible]	
62	226	[illegible]	
63	335	[illegible]	
64	I 21	[illegible]	
65	M. 811	[illegible]	
66	219	[illegible]	
67	233	[illegible]	
68	H. 165	[illegible]	
69	M 276	[illegible]	
70	376	[illegible]	
71	425	[illegible]	
72	493	[illegible]	
73	424	[illegible]	
74	H. 15	[illegible]	"

TABLE XXX

I No.	II Text No.	III Text	IV Sign
1	M. 192	[illegible]	III
2	284	[illegible]	
3	352	[illegible]	
4	443	[illegible]	III
5	H. 162	[illegible]	
6	M. 322	[illegible]	
7	483	[illegible]	
8	254	[illegible]	
9	H. 163	[illegible]	
10	I. 16	[illegible]	
11	M. 61	[illegible]	
12	152	[illegible]	
13	282	[illegible]	
14	343	[illegible]	
15	H. 214	[illegible]	
16	128	[illegible]	
17	M. 86	[illegible]	
18	383, 502	[illegible]	
19	I. 22	[illegible]	
20	M. 498	[illegible]	
21	205	[illegible]	III
22	221	[illegible]	
23	M. 89	[illegible]	IIII
24	7	[illegible]	
25	206	[illegible]	
26	H. 236	[illegible]	
27	M. 133	[illegible]	
28	485	[illegible]	
29	110	[illegible]	
30	311	[illegible]	

TABLE XXXI

I No.	II Text No.	III Text	IV Sign
31	M. 287	[illegible]	IIII
32	412	[illegible]	
33	H. 45	[illegible]	
34	197	[illegible]	
35	M. 292	[illegible]	
36	138	[illegible]	
37	290	[illegible]	
38	I. 8	[illegible]	
39	M. 291	[illegible]	
40	M. 88	[illegible]	
41	369	[illegible]	I I I I
42	372	[illegible]	
43	H. 152	[illegible]	
44	M. 374	[illegible]	
45	370	[illegible]	
46	371	[illegible]	
47	372	[illegible]	
48	402	[illegible]	
49	77	[illegible]	
50	98	[illegible]	
51	336	[illegible]	
52	208	[illegible]	
53	473	[illegible]	
54	152	[illegible]	
55	484	[illegible]	
56	256	[illegible]	
57	257	[illegible]	
58	386	[illegible]	
59	511	[illegible]	
60	H. 35, 36	[illegible]	

TABLE XXXI

I No.	II Text No.	III Text	IV Sign
61	H. 169	[illegible]	[illegible]
62	M 143	[illegible]	
63	230	[illegible]	
64	453	[illegible]	
65	154	[illegible]	
66	474	[illegible]	
67	L. 19	[illegible]	
68	M. 413	[illegible]	
69	253	[illegible] R [illegible]	[illegible]
70	311	[illegible] R	
71	383	[illegible]	
72	87	[illegible] R	
73	295	[illegible] R [illegible]	
74	493	[illegible] R [illegible]	
75	136	[illegible] R	[illegible]
76	129	[illegible] R	
77	91	[illegible] R [illegible]	
78	294	[illegible] R [illegible]	
79	296	[illegible] R [illegible]	
80	H 46	[illegible] R [illegible]	
81	M 293	[illegible] R [illegible]	[illegible]
82	208	[illegible] R [illegible]	[illegible]
83	297, 298	[illegible] R	[illegible]
84	299	[illegible] R [illegible]	
85	440	[illegible] R [illegible]	
86	510	[illegible] R	
87	90	[illegible] R [illegible]	
88	H. 186	[illegible] R [illegible]	
89	M 468	[illegible] R [illegible]	
90	H 118	R [illegible]	

TABLE XXXI

I No.	II Text No.	III Text	IV Sign
91	H. 154 rev	[illegible] R [illegible]	[illegible]
92	81	[illegible] R [illegible]	[illegible]
93	255	[illegible] R [illegible]	
94	251	[illegible] (R)	[illegible]
95	40	[illegible] R	[illegible]
96	125	[illegible] R	
97	47-49	[illegible] R [illegible]	
98	L. 20	[illegible] R [illegible]	
99	17	[illegible] R [illegible]	
100	M. 495	[illegible] R [illegible]	
101	H 201	[illegible] R [illegible]	
102	193	[illegible] R [illegible]	
103	M. 132	[illegible] R [illegible]	
104	163	[illegible] R [illegible]	
105	164	[illegible] R [illegible]	
106	166	[illegible] R [illegible]	
107	167	[illegible] R [illegible]	
108	222	[illegible] R [illegible]	
109	117	[illegible] R [illegible]	
110	H. 129	[illegible] R [illegible]	
111	172	[illegible] R	
112	267	[illegible] R [illegible]	
113	M. 301	[illegible] R	
114	205	[illegible] R [illegible]	[illegible]
115	258	[illegible] R [illegible]	
116	259	[illegible] R	
117	H. 100	[illegible] R	[illegible]
118	M 194	[illegible]	
119	135	[illegible]	
120	139	[illegible]	

TABLE XXXI

I No	II Text No	III Text	IV Sign
121	I. 19	[illegible]	[illegible]
		TABLE XXXII	
1	H. 150	[illegible]	[illegible]
2	H. 511	[illegible]	
		TABLE XXXIII	
1	H. 418	[illegible]	[illegible]
2	475	[illegible]	
3	120	[illegible]	
4	I. 9	[illegible]	
5	H. 37	[illegible]	
6	H. 265, 475	[illegible]	
7	342	[illegible]	
8	133	[illegible]	
9	406	[illegible]	[illegible]
		TABLE XXXIV	[illegible]
1	H. 75	[illegible]	
2	I. 35	[illegible]	
3	H. 382	[illegible]	
4	256	[illegible]	
5	511	[illegible]	
6	279	[illegible]	
7	360	[illegible]	
8	80	[illegible]	
9	330	[illegible]	
10	331	[illegible]	

TABLE XXXIV

I No	II Text No	III Text	IV Sign
11	I. 10	[illegible]	[illegible]
		TABLE XXXV	
1	H. 384	[illegible]	[illegible]
2	76	[illegible]	[illegible]
		TABLE XXXVI	
1	H. 61	[illegible]	[illegible]
2	H. 477	[illegible]	
3	476	[illegible]	
4	405	[illegible]	
5	233	[illegible]	[illegible]
6	21	[illegible]	
7	H. 19	[illegible]	
8	H. 1, 2, 3, 10, 11, 17, 20, 32, 37, 53, 49, 54, 60, 66, 67, 75, 79, 80, 91, 94, 117, 152,	[illegible]	
9	H. 3, 4, 16	[illegible]	[illegible]
10		In [illegible] see Table VII	
11	143	[illegible]	
12	H. 47, 50–52, 81, 83, 155–157, 160,	[illegible]	
13	H. 111	[illegible]	
14	112 rev	[illegible]	
15	Obv	[illegible]	
16	118 rev	[illegible]	
	Obv.	[illegible]	
17	225	[illegible]	
18	166	[illegible]	

TABLE XXXVI

I No.	II Text No.	III Text	IV Sign
19	H. 203	[illegible]	III
20	161	[illegible]	
21	115	obv. [illegible] rev. [illegible]	
22	90	rev. [illegible] obv. [illegible]	
23	M. 456	[illegible]	
24	485	[illegible]	
25	H. 460	obv. [illegible] rev. [illegible]	
26	M. 296	[illegible]	
27	5	[illegible]	
28	410	[illegible]	
29	106	[illegible]	
30	17	obv. [illegible]	
31		rev. [illegible]	
32	18	[illegible]	
33	60	[illegible]	
34	62	[illegible]	
35	152	[illegible]	
36	225	[illegible]	
37	139	[illegible]	
38	454	[illegible]	
39	222	[illegible]	///
40	H. 56	[illegible]	II
41	109, 206, 151	[illegible]	
42	93, 116, 30, 9, 31, 26, 27, 34, 73,	[illegible]	
43	165	[illegible]	
44	138	obv. [illegible] rev. [illegible]	
45	M. 435	[illegible]	
46	101	[illegible]	
47	102	[illegible]	
48	260	[illegible]	
49	3	[illegible]	

TABLE XXXVI

I No.	II Text No.	III Text	IV Sign
50	M. 4	[illegible]	II
51	223	[illegible]	
52	222	[illegible]	
53	224	[illegible]	
54	225	[illegible]	
55	440	[illegible]	
56	471	[illegible]	
57	478	[illegible]	
58	H. 145	obv. and rev. [illegible]	
59	X. 3	[illegible]	
60	M. 275	[illegible]	
61	11	face [illegible]	
62		side [illegible]	
63	H. 66	[illegible]	
64	168	[illegible]	
65	M. 120	[illegible]	
66	X. 173	[illegible]	
67	74	obv [illegible] rev. [illegible]	
68	M. 149	[illegible]	
69	73	[illegible]	
70	165	[illegible]	
71	279	[illegible]	
72	469	[illegible]	
73	363	[illegible]	
74	X. 31	[illegible]	
75	H 219	[illegible]	
76	M. 208	[illegible]	
77	M. 218	[illegible]	
78	115	[illegible]	
79	211	[illegible]	
80	212	[illegible]	

TABLE XXXVI

TABLE XXXVI

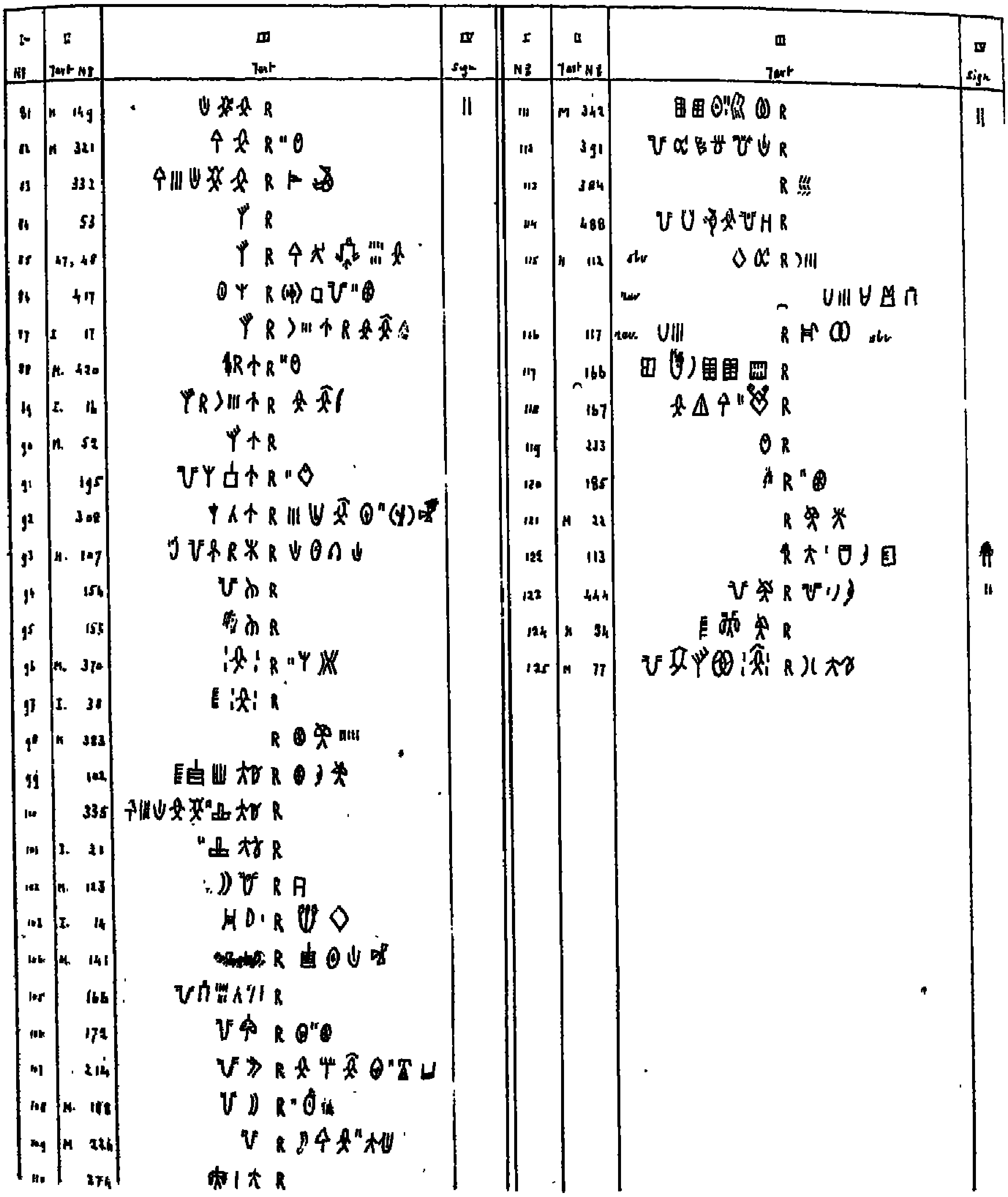


TABLE XXXVII — TABLE XXXVIII

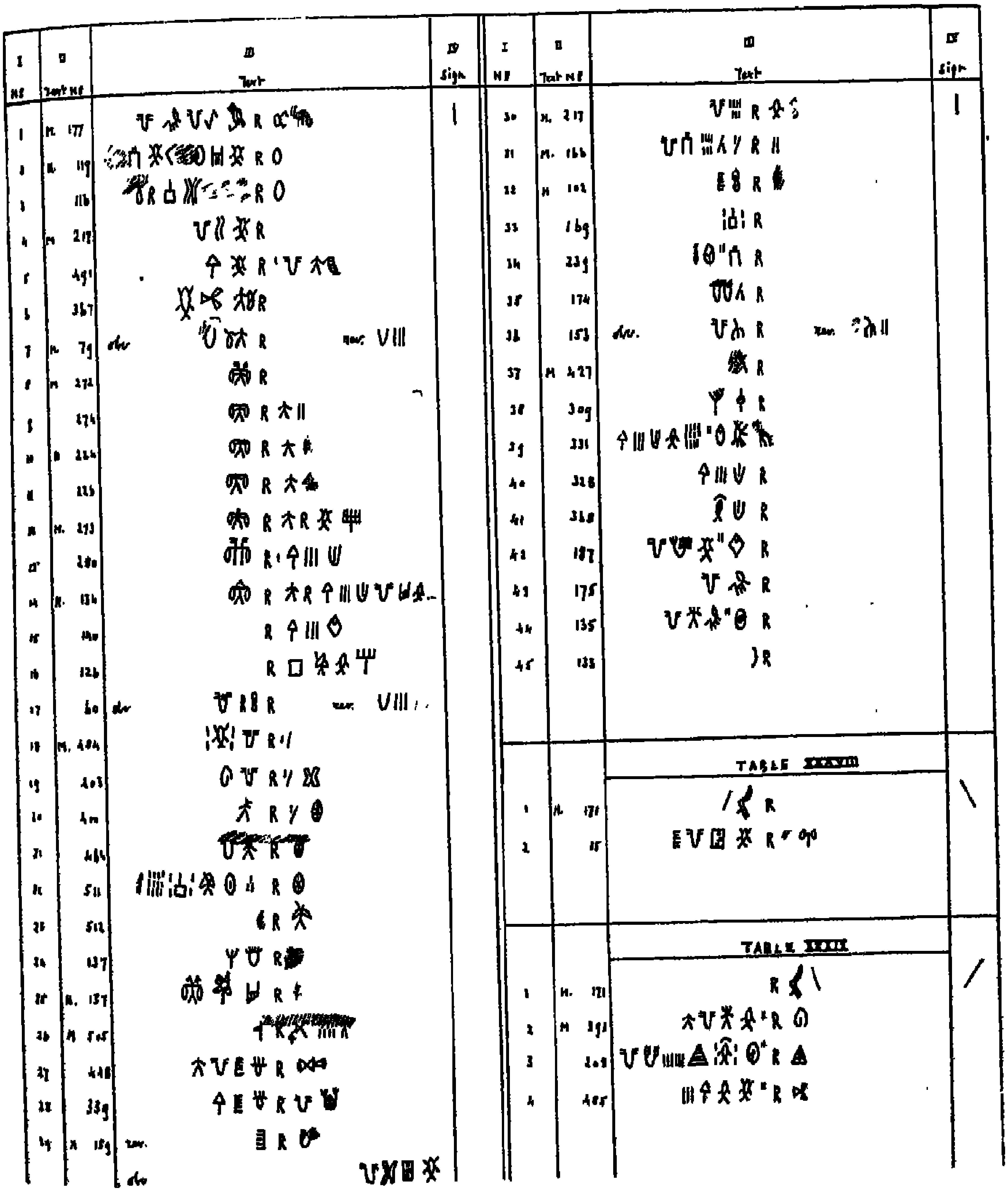


TABLE XL TABLE XL

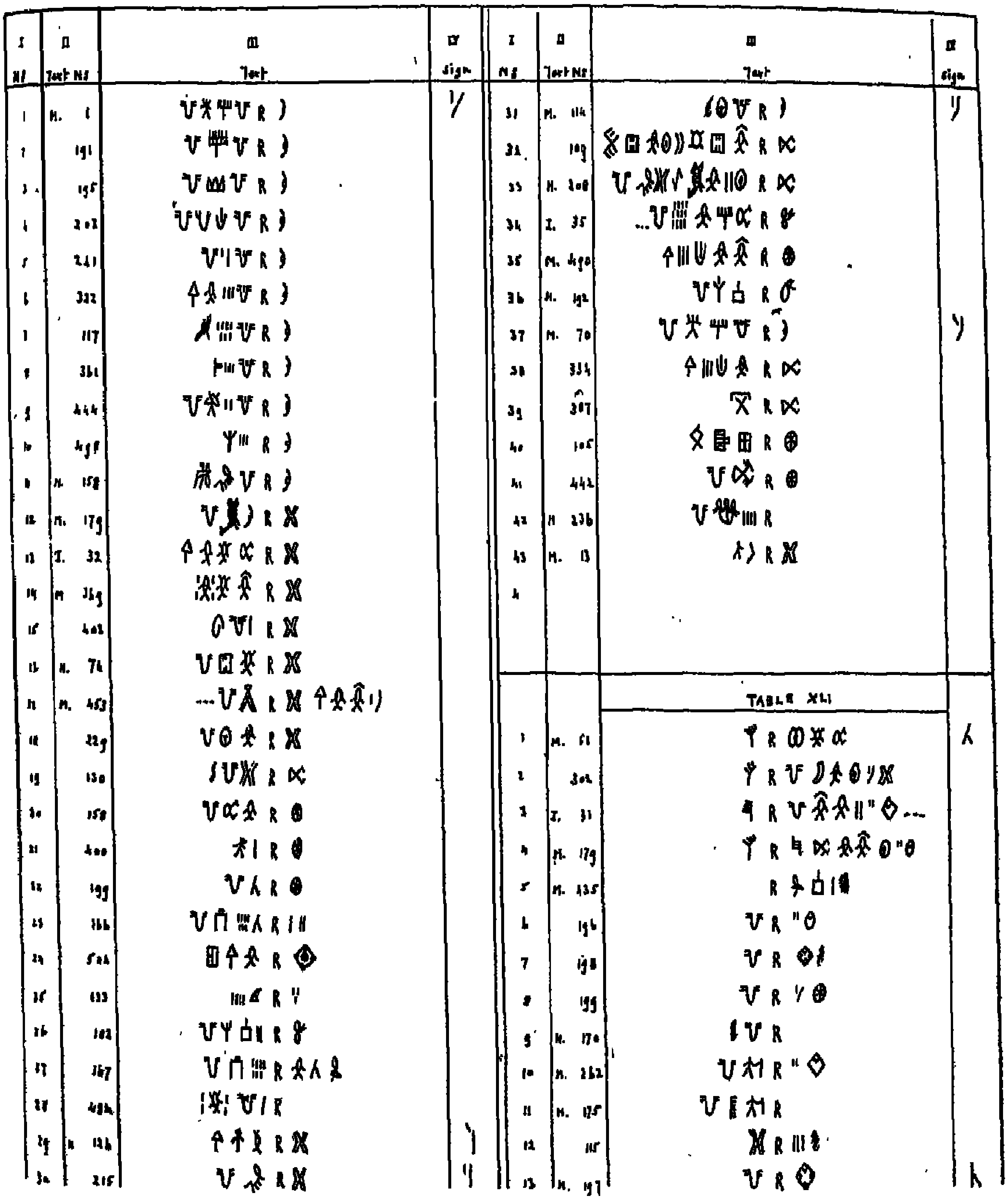


TABLE XLI

I Nº	II Text Nº	III Text	IV Sign
14	M. 261	[illegible]	[illegible]
15	H. 94	[illegible]	
16	M. 308	[illegible]	
17	H. 176	[illegible]	[illegible]
18	M. 36	[illegible]	
19	97	[illegible]	
20	96	[illegible]	[illegible]
21	T. 6	[illegible]	

TABLE XLII

I Nº	II Text Nº	III Text	IV Sign
1	M. 167	[illegible]	[illegible]
2	194	[illegible]	
3	312	[illegible]	
4	366	[illegible]	
5	365	[illegible]	
6	421	[illegible]	
7	H. 241	[illegible]	

TABLE XLIII

I Nº	II Text Nº	III Text	IV Sign
1	M. 417	[illegible]	[illegible]
2	H. 241	[illegible]	[illegible]
3	H. 143	[illegible]	[illegible]
4	125	[illegible]	
5	108	[illegible]	
6	H. 105	[illegible]	
7	M. 344	[illegible]	
8	109	[illegible]	
9	I. 24	[illegible]	
10	T. 3	[illegible]	
11	M. 216	[illegible]	
12	H. 93	[illegible]	
13	203	[illegible]	
14	188	[illegible]	
15	M. 214	[illegible]	[illegible]
16	215	[illegible]	
17	394	[illegible]	[illegible]
18	306	[illegible]	[illegible]
19	171	[illegible]	[illegible]
20	17	[illegible]	[illegible]

TABLE XLIV

I Nº	II Text Nº	III Text	IV Sign
1	M. 77	[illegible]	[illegible]
2	232	[illegible]	
3	H. 126	[illegible]	[illegible]
4	M. 142	[illegible]	
5	200	[illegible]	
6	347	[illegible]	

TABLE XLIV

TABLE XLIV

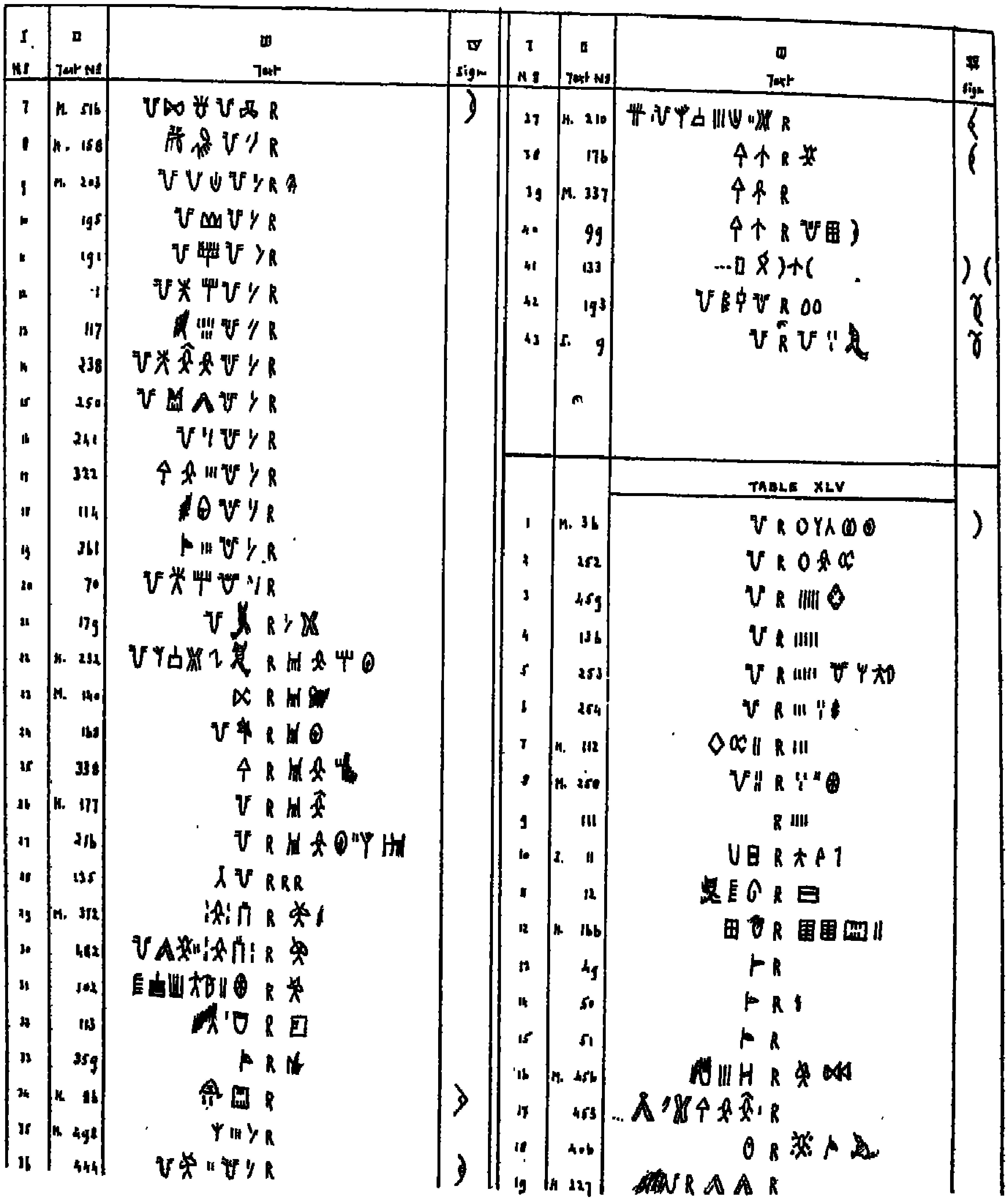


TABLE XLV

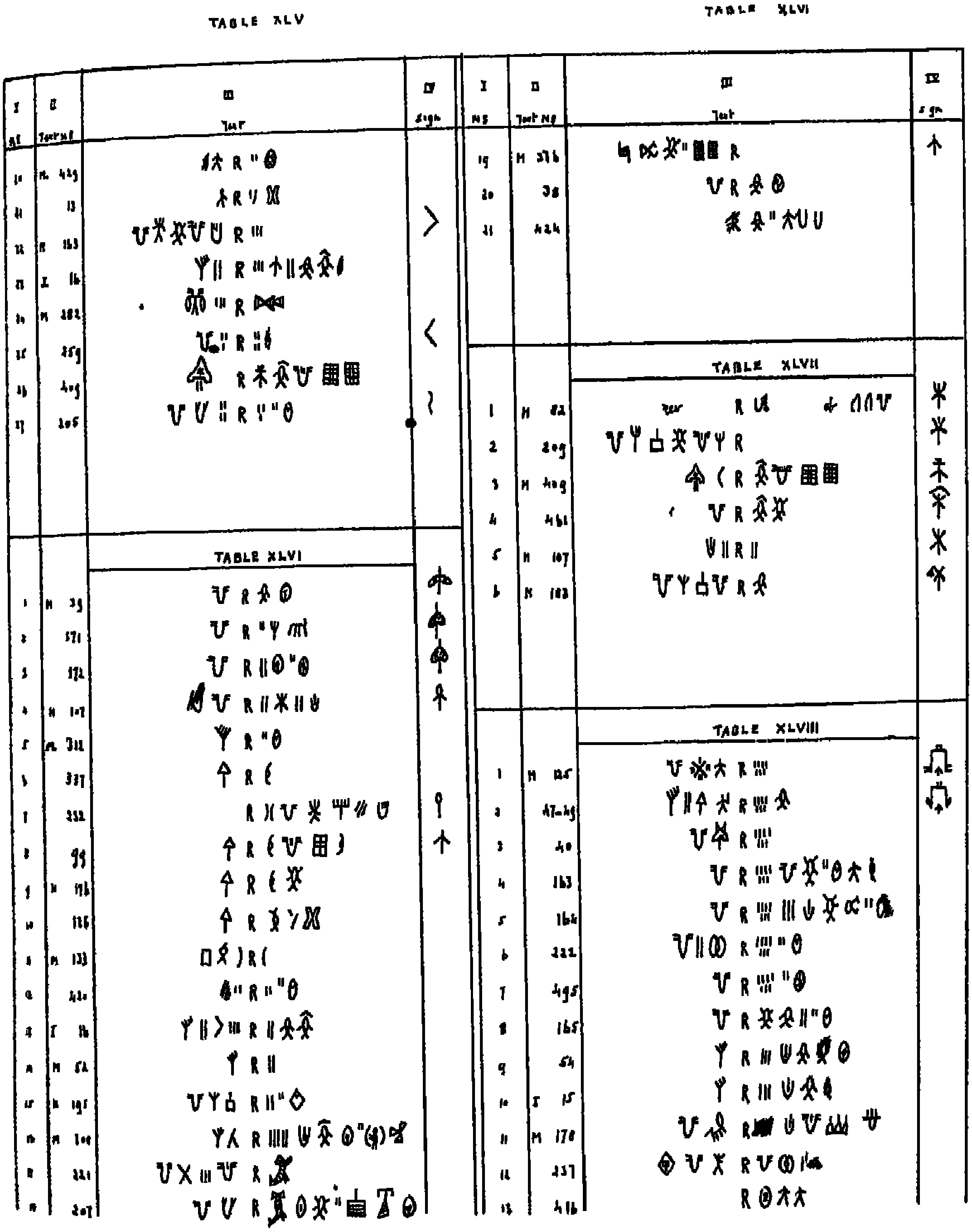


TABLE XLV
TABLE XLVI
TABLE XLVII
TABLE XLVIII

TABLE XLVIII

I No.	II Text No.		III Text	IV Sign
14	I	20	[illegible]	[illegible]
5	M	201	[illegible]	[illegible]
16	M	450	[illegible]	[illegible]
17	I	17	[illegible]	
18	M	132	[illegible]	
19		166	[illegible]	
20	M	192	[illegible]	
21	M	167	[illegible]	
22		97	[illegible]	
23		326	[illegible]	
24	I	33	[illegible]	
25	M	373	[illegible]	
26		402	[illegible]	
27		408	[illegible]	
28	M	112	[illegible]	
29		151	[illegible]	
30	M	162	[illegible]	
31	M	239	[illegible]	
32	M	372	[illegible]	
33		482	[illegible]	[illegible]
34	M	119	[illegible]	[illegible]
35	M	111	[illegible]	[illegible]
36		478	[illegible]	[illegible]
37	I	6	[illegible]	
38	M	74	[illegible]	[illegible]

TABLE XLIX

I No.	II Text No.		III Text	IV Sign
1	M	147	[illegible]	[illegible]
2		390	[illegible]	
3		416	[illegible]	
4	M	160	[illegible]	
5	M	8	[illegible]	
6		393	[illegible]	
7		394	[illegible]	
8		395	[illegible]	
9		396	[illegible]	
10		397	[illegible]	
11		440	[illegible]	
12		471	[illegible]	
13		448	[illegible]	
14		506	[illegible]	
15		514	[illegible]	
16	I	5	[illegible]	
17	M	224	[illegible]	
18		226	[illegible]	
19		134	[illegible]	
20	M	273	[illegible]	
21		274	[illegible]	
22	M	129	[illegible]	
23		120	[illegible]	
24	M	125	[illegible]	
25		163	[illegible]	
26	I	11	[illegible]	
27	M	429	[illegible]	
28		13	[illegible]	[illegible]
29	M	135	[illegible]	[illegible]
30	M	14	[illegible]	[illegible]

TABLE XLIX

I Nº	II Text Nº	III Text	IV Sign
31	M 76	[illegible]	[illegible]
32	29	[illegible]	[illegible]
33	22	[illegible]	[illegible]
34	86	[illegible]	[illegible]
35	M 14	[illegible]	[illegible]
36	47–49	[illegible]	
37	96	[illegible]	
38	M 238	[illegible]	[illegible]
39	M 453	[illegible]	[illegible]
40	7	[illegible]	[illegible]
41	445	[illegible]	
42	499	[illegible]	[illegible]
43	500	[illegible]	
44	H 25	[illegible]	[illegible]
45	90	[illegible]	[illegible]
46	M 424	[illegible]	[illegible]
47	M 418	[illegible]	
48	139	[illegible]	[illegible]
49	M 239	[illegible]	[illegible]
50	378	[illegible]	[illegible]
51	M 94,175	[illegible]	[illegible]
52	M 494	[illegible]	
53	348	[illegible]	
54	262	[illegible]	
55	477	[illegible]	
56	100	[illegible]	
57	101	[illegible]	
58	226	[illegible]	[illegible]
59	428	[illegible]	[illegible]
60	55,56	[illegible]	[illegible]

TABLE XLIX

I Nº	II Text Nº	III Text	IV Sign
61	M 491	[illegible]	[illegible]
62	399	[illegible]	[illegible]
63	405	[illegible]	[illegible]
64	233	[illegible]	[illegible]
65	88	[illegible]	[illegible]
66	M 106	[illegible]	[illegible]
67	M 400	[illegible]	[illegible]
68	401	[illegible]	[illegible]
69	242	[illegible]	[illegible]
70	367	[illegible]	
71	458	[illegible]	
72	M 197	[illegible]	
73	M 360	[illegible]	
74	M 196	[illegible]	
75	M 283	[illegible]	
76	218	[illegible]	
77	202	[illegible]	
78	139	[illegible]	
79	398	[illegible]	
80	186	[illegible]	
81	M 204	[illegible]	
82	M 230	[illegible]	
83	355	[illegible]	
84	401	[illegible]	
85	M 130	[illegible]	
86	M 102	[illegible]	
87	77	[illegible]	
88	I 21	[illegible]	[illegible]
89	M 79	[illegible]	[illegible]

TABLE L

I Nº	II Text Nº	III Text	IV Sign
1	M 1	[illegible]	[illegible]
2	232	[illegible]	
3	234	[illegible]	
4	462	[illegible]	
5	464	[illegible]	
6	477	[illegible]	
7	235	[illegible]	
8	443	[illegible]	
9	352	[illegible]	
10	H 220	[illegible]	
11	163	[illegible]	
12	M 236	[illegible]	
13	H 136	[illegible]	
14	M 464	[illegible]	
15	392	[illegible]	
16	229	[illegible]	
17	237	[illegible]	
18	233	[illegible]	
19	22	[illegible]	
20	17	dw [illegible]	
21	394	[illegible]	
22	306	[illegible]	
23	106	[illegible]	
24	H 202	[illegible]	[illegible]
25	M. 107	[illegible]	
26	70	[illegible]	
27	17	Nw [illegible]	
28	71	[illegible]	
29	135	[illegible]	
30	H 42	[illegible]	

TABLE L

I Nº	II Text Nº	III Text	IV Sign
31	M 72	[illegible]	
32	73	[illegible]	
33	74	[illegible]	
34	H 162	[illegible]	
35	H 7	[illegible]	[illegible]

TABLE LI

I Nº	II Text Nº	III Text	IV Sign
1	M 417	[illegible]	[illegible]
2	310	[illegible]	
3	T 5	[illegible]	
4	H 402	[illegible]	
5	16	[illegible]	
6	475	[illegible]	
7	402	[illegible]	
8	308	[illegible]	[illegible]
9	16	[illegible]	
10	15	[illegible]	
11	225	[illegible]	[illegible]
12	H 205	[illegible]	[illegible]
13	M 419	[illegible]	[illegible]

TABLE LII

TABLE LII

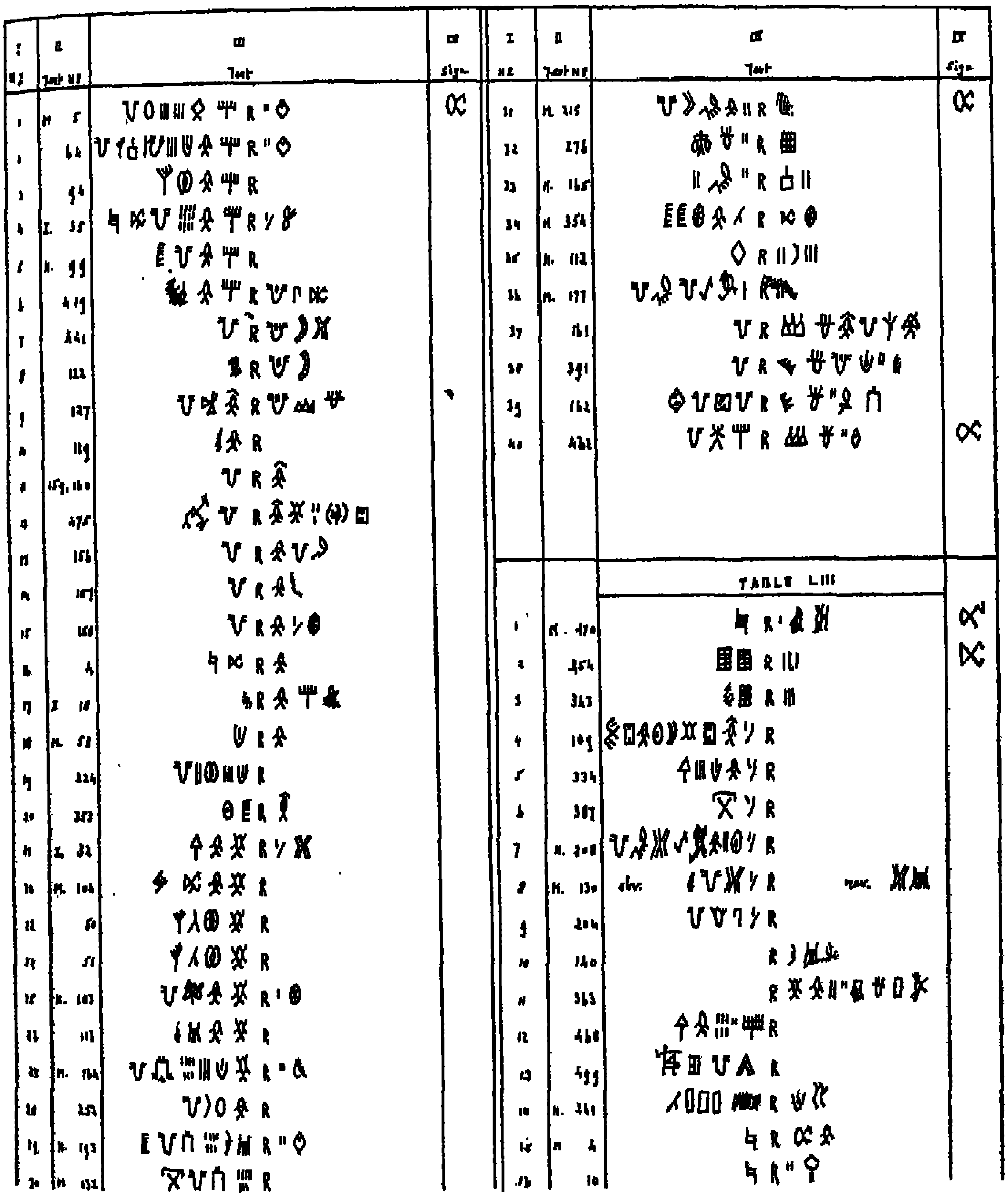


TABLE LIII

TABLE LIV

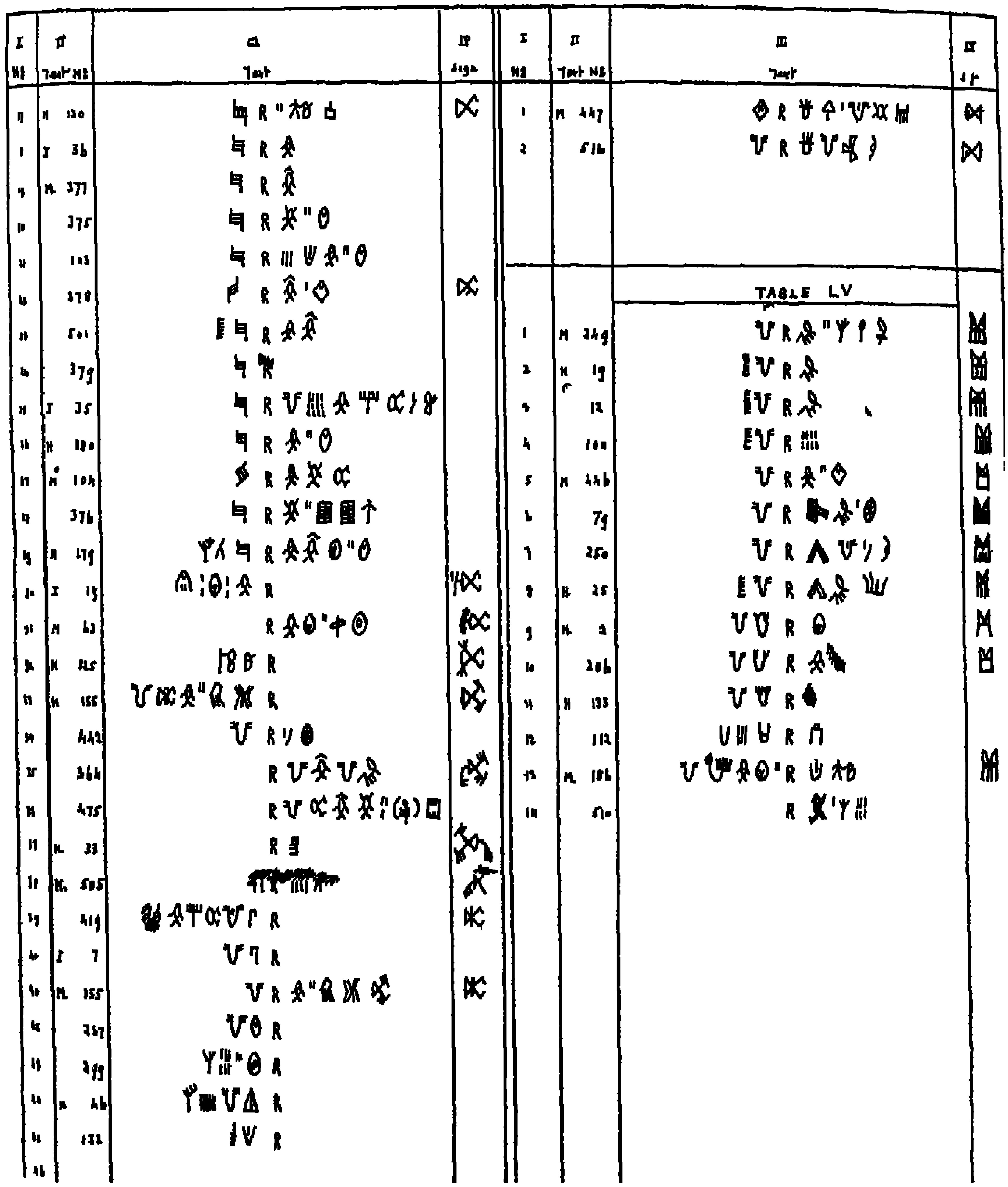


TABLE LVI

TABLE LVIII

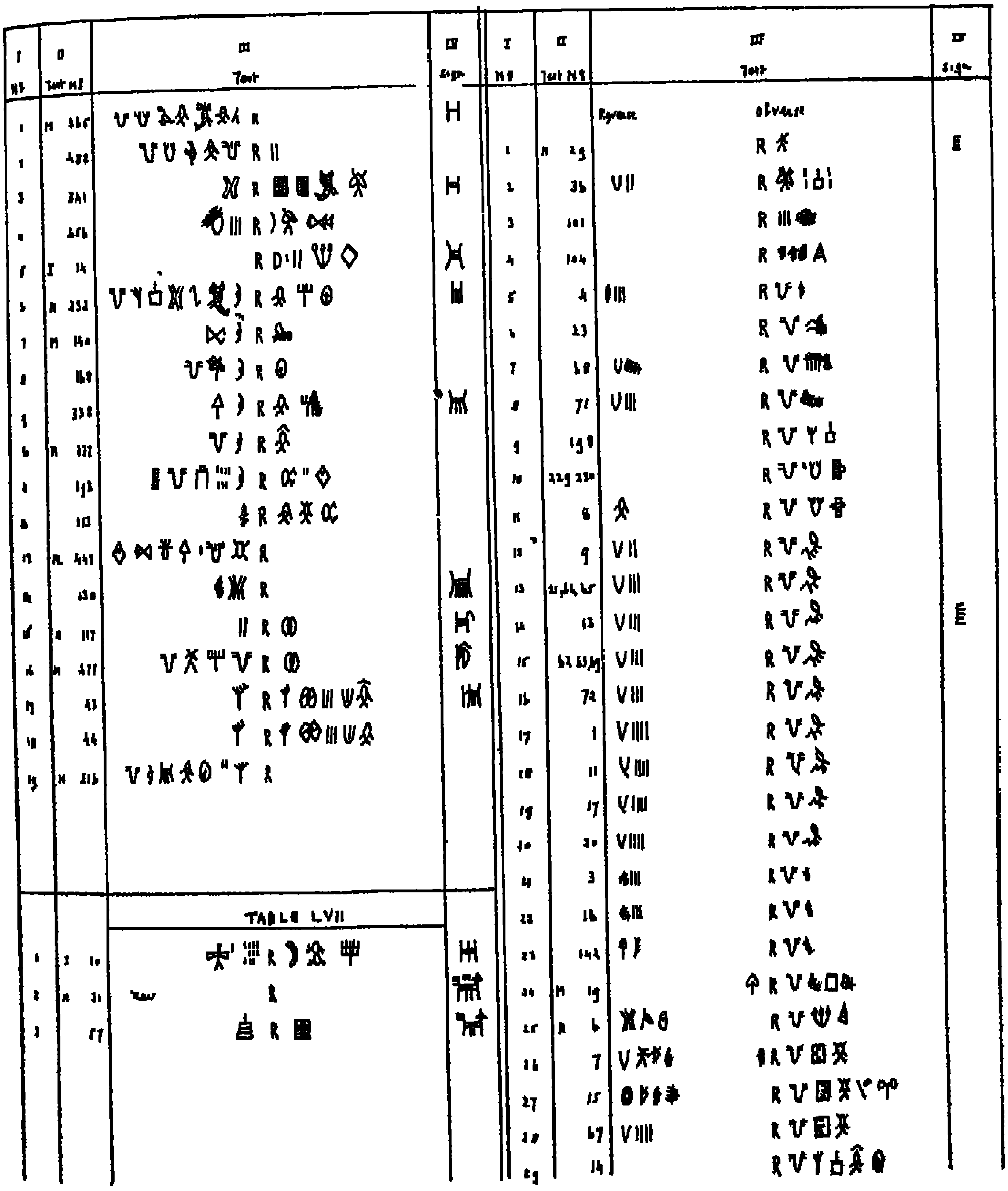


TABLE LVII

TABLE LVIII

I No.	II Text No.	III Text: Reverse	III Text: Obverse	IV Sign
30	H. 18	VIII	[illegible]	[illegible]
31	25	[illegible] VII	[illegible]	
32	100	IIV	[illegible]	
33	66	VIIII	[illegible]	
34	98	[illegible] VII	[illegible]	
35	228		[illegible]	
36	232		[illegible]	
37	H. 102		[illegible]	
38	448		[illegible]	
39	339		[illegible]	
40	H 47		[illegible]	
41	H. 347		[illegible]	
42	348		[illegible]	
43	349		[illegible]	
44	350		[illegible]	
45	351		[illegible]	
46	H 105		[illegible]	
47	106	IIV	[illegible]	
48	129		[illegible]	
49	36	VIII	[illegible]	
50	H 358		[illegible]	
51	359		[illegible]	
52	T. 6		[illegible]	
53	H 54	VIIII	[illegible]	
54	38		[illegible]	
55	450		[illegible]	
56	H. 355		[illegible]	
57	H. 30		[illegible]	
58	33	VII [illegible]	[illegible]	

TABLE LVIII

I No.	II Text No.	III Text		IV Sign
59	H. 356		[illegible]	[illegible]
60	I. 12		[illegible]	
61	H. 26,27	V II	[illegible]	
62	240		[illegible]	
63	103	IV	[illegible]	
64	H. 9		[illegible]	[illegible]
65	H. 96		[illegible]	
66	97		[illegible]	
67	H. 362		[illegible]	
68	H 2	VIIII	[illegible]	
69	10	VIIII	[illegible]	
70	70	VIII	[illegible]	
71	22		[illegible]	
72	53		[illegible]	
73	99		[illegible]	
74	193		[illegible]	
75	102		[illegible]	
76	175		[illegible]	
77	H 440	obv	[illegible]	
78	440	rev.	[illegible]	
79	501		[illegible]	
80	I. 38		[illegible]	
81	H 12		[illegible]	[illegible]
82	19	IIII V	[illegible]	
83	I. 18		[illegible]	
84	H 348		[illegible]	[illegible]
85	494		[illegible]	
86	H. 121	IIV	[illegible] *	[illegible]
87	118	UIIUOU	[illegible] *	[illegible]
88	121	IIV	[illegible] *	

TABLE LVIII — TABLE LIX — TABLE LX — TABLE LXI

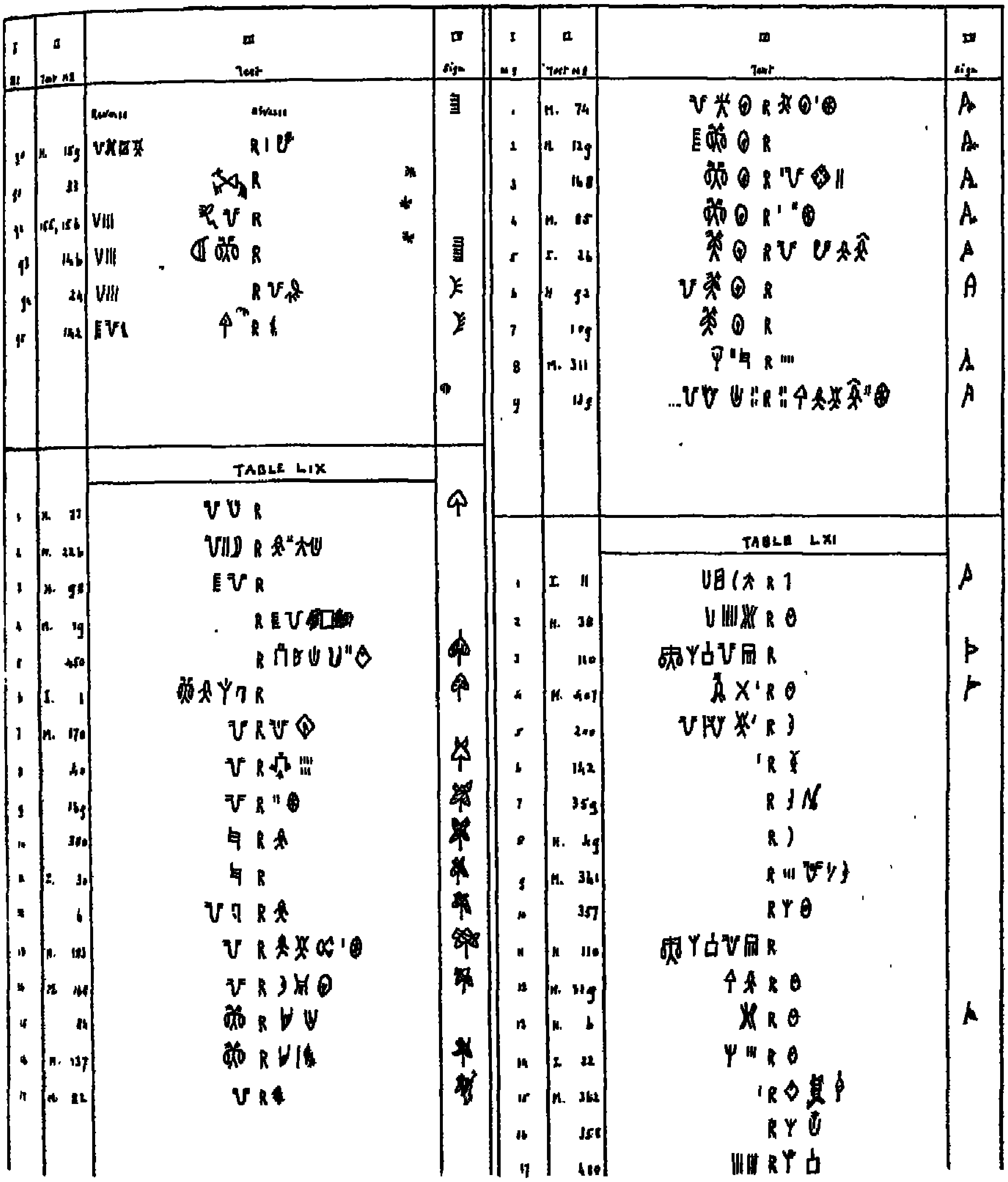


TABLE LXI

I Nº	II Text Nº	III Text	IV Sign
18	M. 307	[illegible]	[illegible]
19	H. 51	[illegible]	
20	M. 360	[illegible]	
21	403	[illegible]	
22	332	[illegible]	[illegible]
23	H. 60	[illegible]	[illegible]
24	I. 5	[illegible]	[illegible]
25	M. 505	[illegible]	[illegible]

TABLE LXII

I Nº	II Text Nº	III Text	IV Sign
1	I. 14	[illegible]	[illegible]
2	H. 15	[illegible]	[illegible]
3	M. 225	[illegible]	[illegible]
4	H. 44	[illegible]	
5	H. 151	[illegible]	
6	H. 31	[illegible]	
7	30	[illegible]	[illegible]
8	M. 450	[illegible]	[illegible]
9	H. 125	[illegible]	
10	76	[illegible]	
11	150	[illegible]	

TABLE LXIII

I Nº	II Text Nº	III Text	IV Sign
	M. 102	[illegible]	[illegible]
	439	[illegible]	
	443	[illegible]	
	H. 162	[illegible]	[illegible]
	M. 252	[illegible]	[illegible]
	22	[illegible]	
	145	[illegible]	
	264	[illegible]	
	295	[illegible]	
	306	[illegible]	
	I. 27	[illegible]	
	M. 390	[illegible]	
	303	[illegible]	
	511	[illegible]	
	206	[illegible]	
	402	[illegible]	
	18	[illegible]	
	M. 389	[illegible]	[illegible]
	372	[illegible]	[illegible]
	509	[illegible]	[illegible]
	154	[illegible]	
	161	[illegible]	[illegible]
	126	[illegible]	[illegible]
	144	[illegible]	[illegible]
	512	[illegible]	
	341	[illegible]	
	444	[illegible]	
	H. 34	[illegible]	[illegible]

TABLE LXIV

TABLE LXV

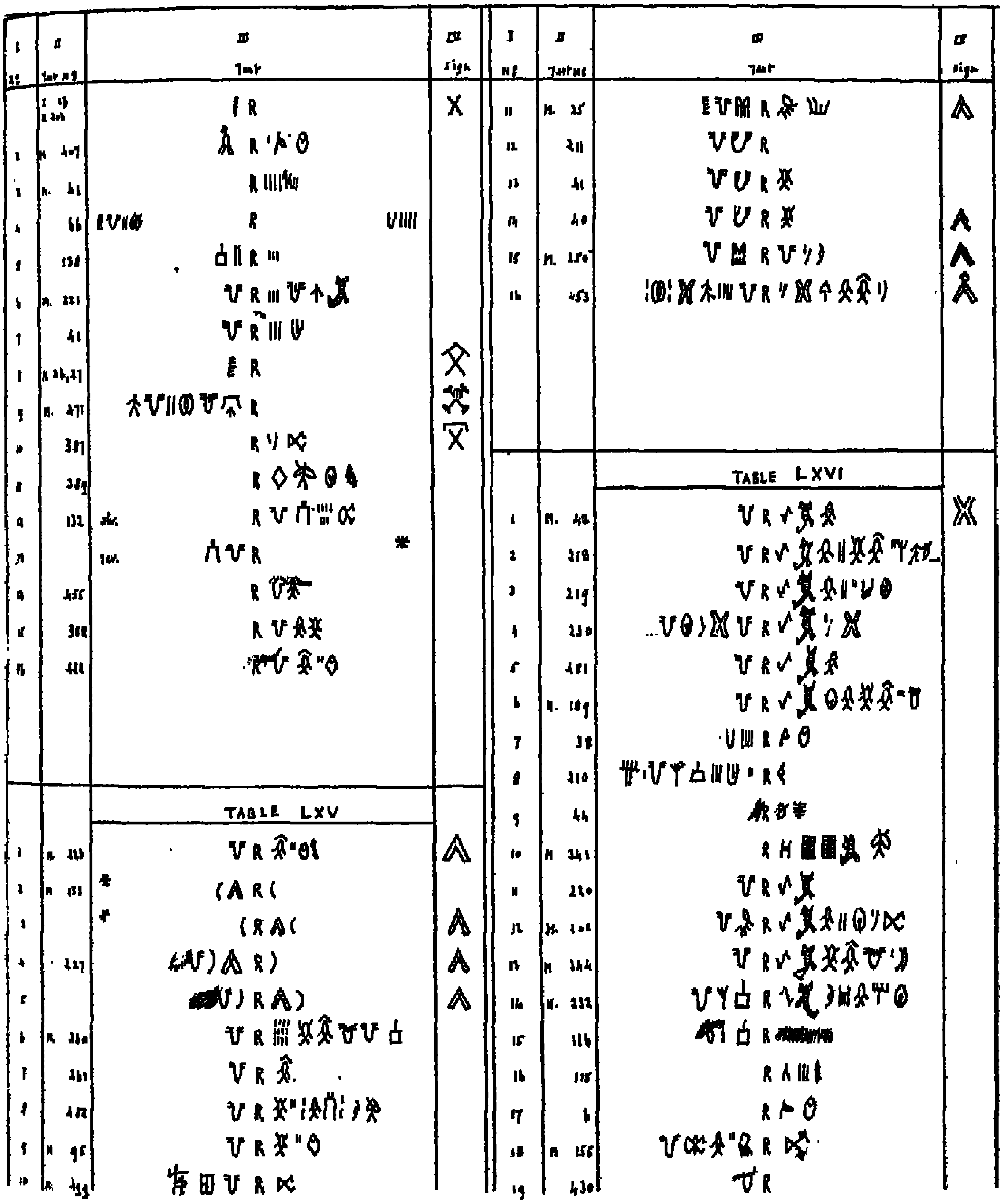


TABLE LXVI

I No	II Text No		III Text	IV Sign
20	M	130	[illegible]	[illegible]
21		370	[illegible]	
22	M	75	[illegible]	[illegible]
23		159	[illegible]	
24	M	179	[illegible]	
25		53	[illegible]	
26	M	126	[illegible]	
27	M	229	[illegible]	
28	I	32	[illegible]	
29	M	230	[illegible]	
30		302	[illegible]	
31		403	[illegible]	
32		453	[illegible]	
33	M	76	[illegible]	
34	M	229	[illegible]	
35		151	[illegible]	
36		411	[illegible]	
37		441	[illegible]	
38		453	[illegible]	
39	M	215	[illegible]	[illegible]

TABLE LXVII

I No	II Text No		III Text	IV Sign
1	M	161	[illegible]	[illegible]
2		178	[illegible]	
3		462	[illegible]	
4		192	[illegible]	
5	M	200	[illegible]	
6	M	296	[illegible]	[illegible]
7		494	[illegible]	[illegible]
8		493	[illegible]	
9		193	[illegible]	
10		194	[illegible]	[illegible]
11		307	[illegible]	
12		162	[illegible]	
13		291	[illegible]	
14		187	[illegible]	[illegible]
15		153	[illegible]	
16		392	[illegible]	
17		351	[illegible]	
18		68	[illegible]	
19		195	[illegible]	
20		67	[illegible]	[illegible]
21		63	[illegible]	[illegible]

TABLE LXVIII

I No	II Text No	III Text	IV Sign
1	H 142	[illegible]	[illegible]
2	H 339	[illegible]	[illegible]
3	H 147	[illegible]	
4	141	* [illegible]	
5	H 9	[illegible]	
6	47, 48	[illegible]	
7	49	[illegible]	
8	96	[illegible]	
9	95	[illegible]	
10	337	[illegible]	
11	H 126	[illegible]	
12	176	[illegible]	
13	H 338	[illegible]	
14	349	[illegible]	
15	407	[illegible]	
16	H 167	[illegible]	
17	318	* [illegible]	
18	H 466	[illegible]	
19	H 44	[illegible]	
20	641	[illegible]	
21	138	[illegible]	
22	H 316	[illegible]	
23	316	[illegible]	
24	314	[illegible]	
25	313	[illegible]	
26	319	[illegible]	
27	320	[illegible]	
28	321	[illegible]	
29	322	[illegible]	
30	403	[illegible]	

TABLE LXVIII

I No	II Text No	III Text	IV Sign
31	M 323	[illegible]	[illegible]
32	492	[illegible]	
33	504	[illegible]	
34	H 219	[illegible]	
35	M 311	[illegible]	
36	485	[illegible]	
37	318	[illegible]	
38	I 32	[illegible]	
39	H 453	[illegible]	
40	139	[illegible]	
41	507	[illegible]	
42	433	[illegible]	
43	327	[illegible]	
44	348	[illegible]	
45	324, 325	[illegible]	
46	8	[illegible]	
47	326	[illegible]	
48	469	[illegible]	
49	491	[illegible]	
50	H 43	[illegible]	
51	H 280	[illegible]	
52	328	[illegible]	
53	329	[illegible]	
54	330	[illegible]	
55	351	[illegible]	
56	347	[illegible]	
57	490	[illegible]	
58	332	[illegible]	
59	333	[illegible]	
60	334	[illegible]	

TABLE LXVIII

TABLE LXXI

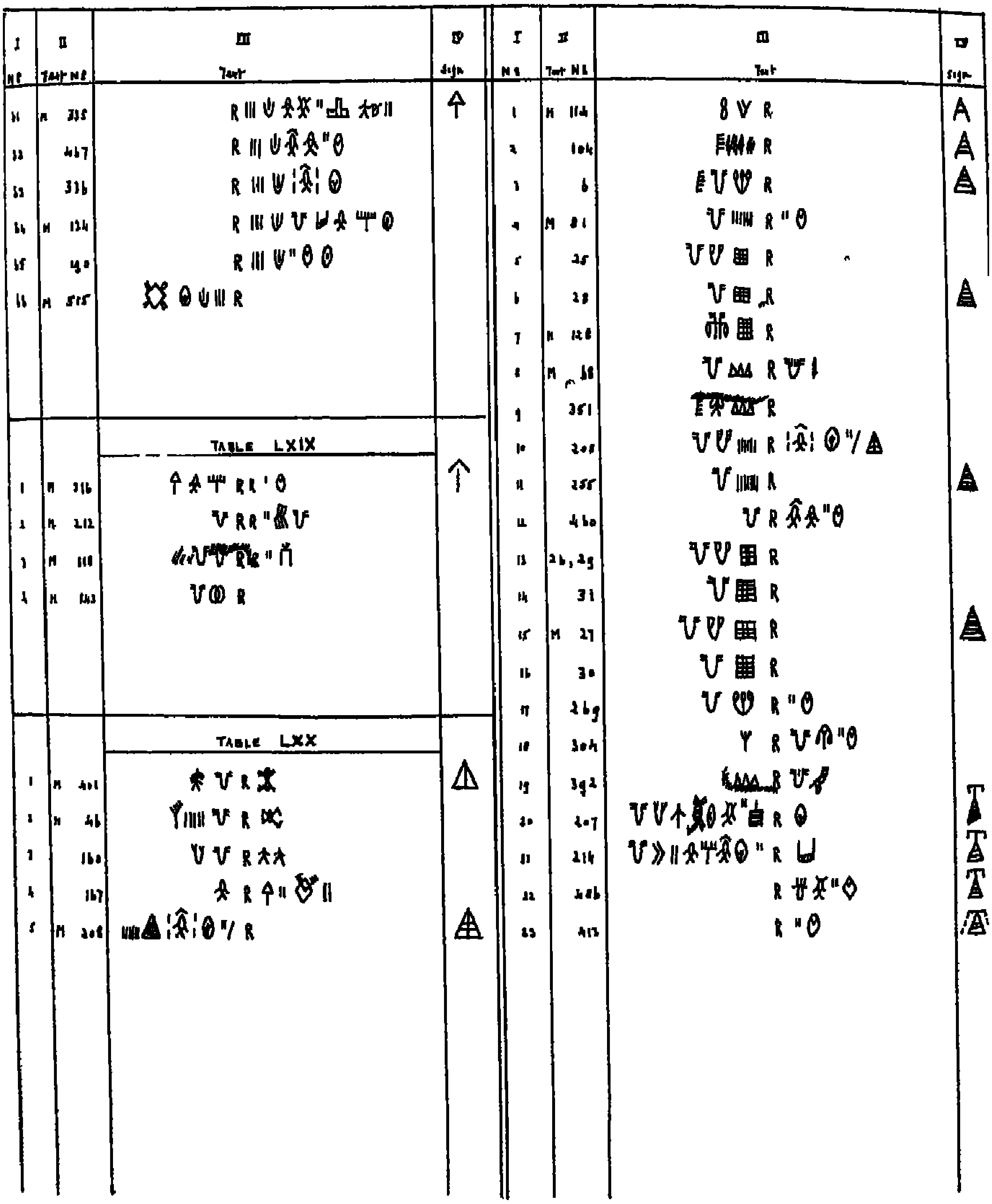
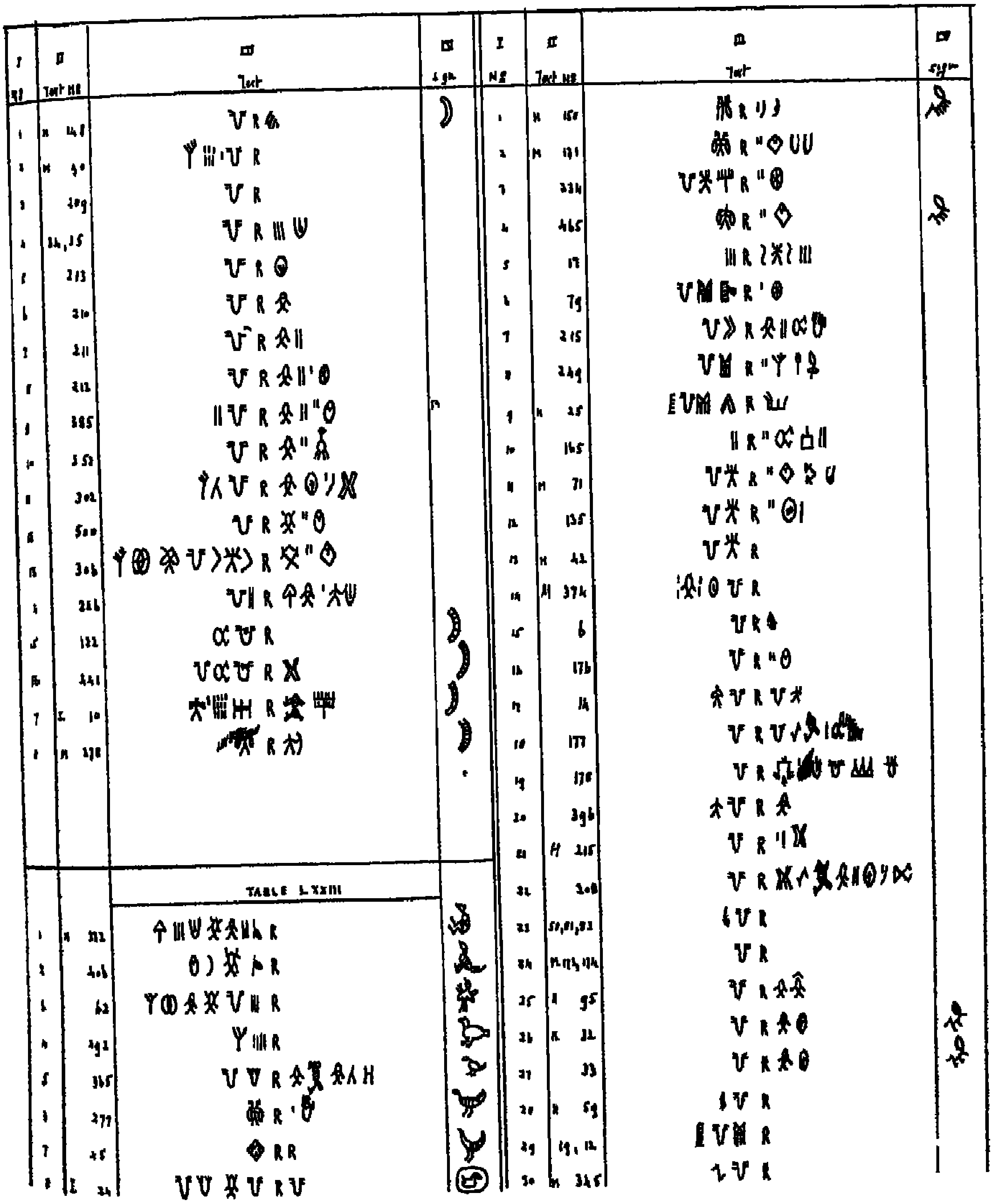


TABLE LXXII

TABLE LXXIV



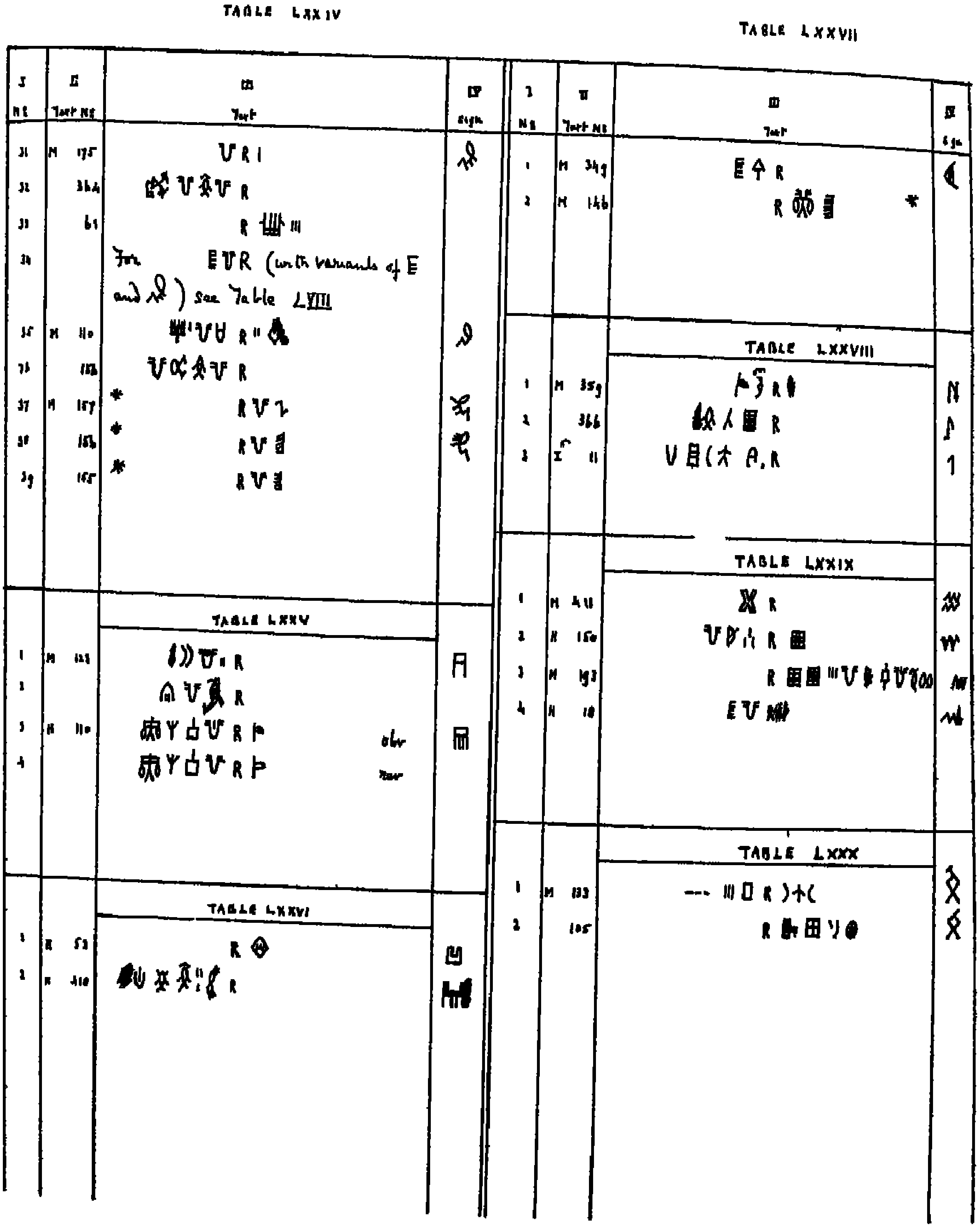


TABLE LXXIV
For ... (with variants of ... and ...) see Table LVIII
TABLE LXXV
obv
rev
TABLE LXXVI
TABLE LXXVII
TABLE LXXVIII
TABLE LXXIX
TABLE LXXX

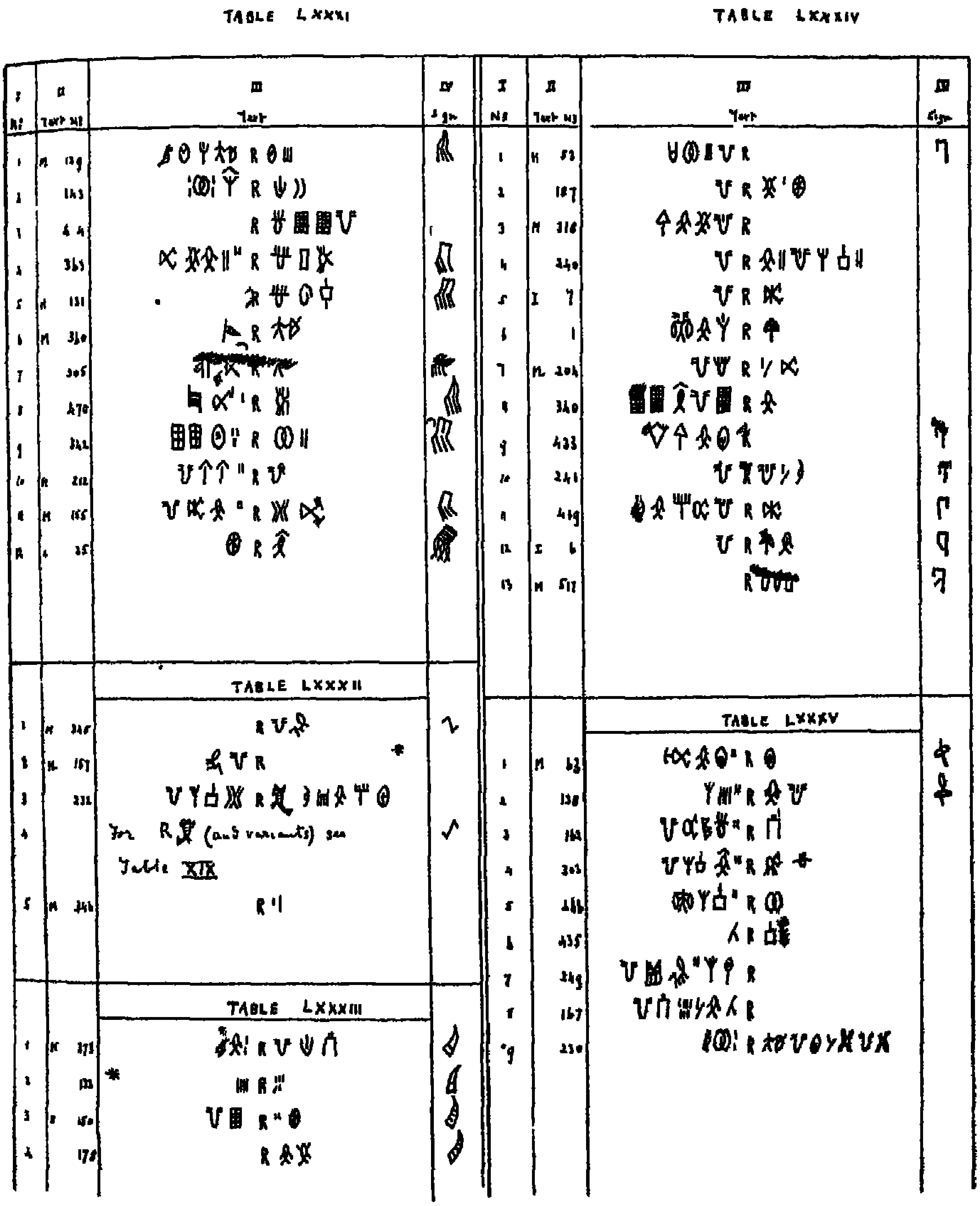


TABLE LXXXI
TABLE LXXXIV
Text
Sign
TABLE LXXXII
TABLE LXXXV
TABLE LXXXIII
For R (and variants) see Table XIX

TABLE LXXXVI

I No.	II Text No.	III Text	IV Sign
1	M 127	[illegible] R [illegible]	[illegible]
2	223	[illegible] R [illegible]	
3	242	[illegible] R [illegible]	
4	516	[illegible] R [illegible]	
5	485	[illegible] R	
6	367	[illegible] R [illegible]	
7	308	[illegible] R	
8	141	[illegible] R	
9	M 56	[illegible] R [illegible]	
10	M 72	[illegible] R [illegible]	[illegible]

TABLE LXXXVII

I No.	II Text No.	III Text	IV Sign
1	M 61	[illegible] R [illegible]	[illegible]
2	62	R [illegible]	[illegible]
3	102	[illegible] R [illegible]	[illegible]
4	439	[illegible] R [illegible]	
5	434	[illegible] R [illegible]	
6	112	[illegible]	
7	M 26	[illegible] R	[illegible]

TABLE LXXXVIII

I No.	II Text No.	III Text	IV Sign
1	M 335	[illegible] R [illegible]	[illegible]
2	I 21	[illegible] R [illegible]	

TABLE LXXXIX

I No.	II Text No.	III Text	IV Sign
1	M 60	[illegible] R [illegible]	[illegible]
2	79	[illegible] R [illegible]	[illegible]
3	105	[illegible] R [illegible]	
4	M 231	[illegible] R	[illegible]
5	230	[illegible] R	
6	M 220	[illegible] R	[illegible]
7	229	[illegible] R	[illegible]
8	8	[illegible] R	[illegible]

TABLE XC

I No.	II Text No.	III Text	IV Sign
1	M 109	[illegible] R [illegible] R [illegible]	[illegible]
2	415	R [illegible]	
3	M 214	[illegible] R	
4	74	[illegible] R [illegible]	
5	67	[illegible] R [illegible]	[illegible]
6	7	[illegible] R [illegible]	[illegible]
7	75, 159	[illegible] R [illegible]	
8	15	[illegible] R [illegible]	
9	M 162	[illegible] R [illegible]	
10	246	[illegible] R [illegible]	[illegible]
11	245	[illegible] R [illegible]	[illegible]
12	I 2	[illegible] R	
13	M 218	[illegible] R [illegible]	[illegible]
14	M 166	[illegible] R [illegible]	[illegible]
15	194	[illegible] R [illegible]	
16	86	[illegible] R [illegible]	
17	85	[illegible] R [illegible]	
18	M 475	[illegible] R	

TABLE XC

I No.	II Text No.	III Text	IV Sign
19	M 426	[illegible]	[illegible]
20	390	[illegible]	
21	I 27	[illegible]	[illegible]
22	M. 449	[illegible]	[illegible]
23	113	[illegible]	[illegible]

TABLE XCI

I No.	II Text No.	III Text	IV Sign
1	M. 143	[illegible]	[illegible]
2	230	[illegible]	
3	453	[illegible]	
4	275	[illegible]	
5	M 165	[illegible]	
6	M 440	[illegible]	
7	471	[illegible]	
8	223	[illegible]	
9	478	[illegible]	
10	I. 3	[illegible]	
11	M 4	[illegible]	
12	325	[illegible]	
13	3	[illegible]	
14	222	[illegible]	
15	224	[illegible]	
16	18	[illegible]	
17	237	[illegible]	
18	265	[illegible]	
19	479	[illegible]	
20	M 37	[illegible]	
21	163	[illegible]	
22	H. 88	[illegible]	[illegible]
23	87	[illegible]	
24	53	[illegible]	
25	47	[illegible]	
26	117	[illegible]	
27	H. 477	[illegible]	
28	466	[illegible]	
29	342	[illegible]	
30	37	[illegible]	
31	36	[illegible]	
32	51	[illegible]	
33	305	[illegible]	[illegible]
34	62	[illegible]	[illegible]
35	509	[illegible]	
36	H. 66	[illegible]	[illegible]
37	M. 34	[illegible]	[illegible]
38	93	[illegible]	
39	92	[illegible]	
40	77	[illegible]	
41	43-46	[illegible]	
42	50	[illegible]	
43	306	[illegible]	
44	23	[illegible]	[illegible]

TABLE XCII

I No.	II Text No.	III Text	IV Sign
1	M 126	[illegible]	[illegible]
2	133	[illegible]	
3	363	[illegible]	
4	H 241	[illegible]	.
5	M. 412	[illegible]	
6	417	[illegible]	
7	I 12	[illegible]	[illegible]
8	11	* [illegible]	[illegible]
9	M. 469	[illegible]	
10	148	[illegible]	[illegible]
11	101	[illegible]	[illegible]
12	H. 166	[illegible]	
13	M. 342	[illegible]	[illegible]
14	H. 150	[illegible]	[illegible]
15	M 193	[illegible]	
16	459	[illegible]	
17	H. 166	[illegible]	
18	M. 376	[illegible]	[illegible]
19	291	[illegible]	
20	366	[illegible]	[illegible]
21	I. 13	[illegible]	[illegible]
22	M 25-23	[illegible]	[illegible]
23	H. 301	[illegible]	
24	M. 276	[illegible]	
25	H. 150	[illegible]	
26	M 99	[illegible]	
27	8	[illegible]	
28	I. 28	[illegible]	[illegible]
29	H. 100	[illegible]	
30	56,55	[illegible]	

TABLE XCII

I No.	II Text No.	III Text	IV Sign
31	M. 409	[illegible]	[illegible]
32	H. 213	[illegible]	
33	M 57	[illegible]	
34	343	[illegible]	
35	445	[illegible]	
36	H. 128	[illegible]	
37	M 30,31	[illegible]	
38	414	[illegible]	[illegible]
39	341	[illegible]	
40	H. 237	[illegible]	[illegible]
41	M. 340	[illegible]	[illegible]
42	105	[illegible]	[illegible]

TABLE XCIII

I No.	II Text No.	III Text	IV Sign
1	M 489	[illegible]	[illegible]
2	345	[illegible]	
3	493	[illegible]	
4	492	[illegible]	
5	504	[illegible]	
6	506	[illegible]	
7	257	[illegible]	
8	[illegible] 1	[illegible]	[illegible]

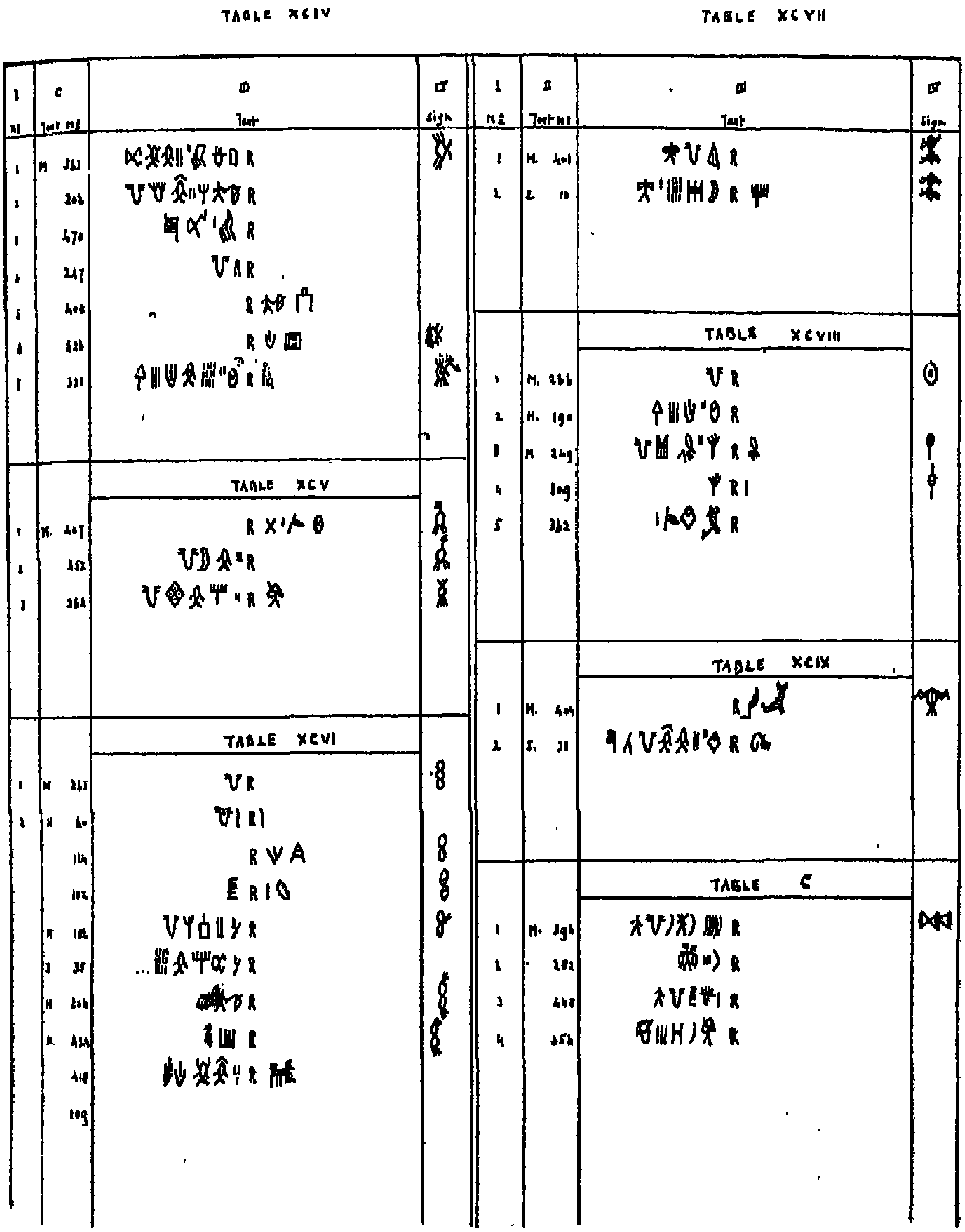


TABLE XCIV
TABLE XCV
TABLE XCVI
TABLE XCVII
TABLE XCVIII
TABLE XCIX
TABLE C

TABLE CI

I	II		III	IV
1	M.	77	[illegible]	[illegible]
2		109	[illegible]	[illegible]
3		447	[illegible]	

TABLE CII

I	II		III	IV
1	H.	413	[illegible]	[illegible]
2	M.	396	[illegible]	[illegible]
3		10	[illegible]	[illegible]
4		71	[illegible]	[illegible]
5		171	[illegible]	[illegible]
6		109	[illegible]	[illegible]
7		163	... [illegible]	[illegible]

MOHENJODARO.

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.
1	E. 444	30	VS. 3500	60	L. 461
2	Hr. 165	31	VS. 2590	61	Sd. 1200
3	DK. 210	32	VS. 2613	62	Hr. 115
4	Hr. 1651	33	Hr. 2743	63	
5	[1]	34	VS. 888	64	
6	Hr. 3959	35	VS. 56 (2)	65	O. 2056
7	DK. 2732	36	Sd. 2554	66	Hr. 1121
8	Hr. 3766	37	DK. 1994	67	L. 702
9	Hr. 4805	38	Sd. 1517	68	VS. 208
10	L. 515	39	VS. 2360	69	D. 150
11		40	VS. 983	70	Hr. 3689
12	Hr. 3388	41	VS. 2028	71	Hr. 1575
13		42	DK. 1378	72	Hr. 1050
14	O. 696	43	DK. 1606	73	Hr. 4285
15	Hr. 1056	44	L. 459	74	Hr. 2023
16	Hr. 4275	45	VS. 2109	75	Sd. 818
17	Hr. 5971	46	Sd. 1758	76	D. 114
18	Hr. 1443	47	Hr. 2676	77	D. 262
19	Hr. 2289	48	Hr. 4337	78	D. 263
20	Sd. 1923	49	Sd. 2051	79	E. 1095
21	VS. 1026	50	Hr. 5616	80	Hr. 4237
22	Hr. 5616	51	Hr. 2882	81	DK. 1221
23	DK. 634	52	VS. 1104	83	VS. 2100
24.	VS. 192	53	Hr. 4573	84	Hr. 4109
25	Hr. 723	54	VS. 2432	85	
26	Hr. 4337	55	Hr. 2984	86	D. 288
27	VS. 3320	56	VS. 1959	87	Hr. 6216
28	L. 456	57	Hr. 4615	88	DK. 597
29	VS. 1988	58	Hr. 4799	89	O. 217

1. Some objects had not been registered at the time of the writer's visit.

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.
90	DK. 1638	122	VS. 1694	153	DK. 844
91	Hr. 6187	123	Hr. 4459	154	Sv. 615 (?)
92	O. 1878	124	Hr. 4125	155	Hr. 2025
93		125	Hr. 3139 (?)	156	E. 296
94	Sd. 1962	126	O. 656	157	
96	VS. 1681	127	Hr. 5147	158	E. 2767
97	Hr. 6177	128	Hr. 5248	159	O. 2803
98	Hr. 2780	129	E. 2528	160	DK. 2055
99		130	E. 2038	161	DM. 135
100	O. 554	131	E. 904	162	Hr. 5531
101	D. 207	132	A. 148	163	SD. 92
102	DM. 255	133		164	VS. 623
103	O. 204	134	Hr. 2939	165	DK. 315
104	VS. 2289	135	DK. 2484	166	DK. 962
105		136	VS. 2846	167	Hr. 4585
106	Hr. 1695	137	VS. 2049	168	Hr. 5630
107	DK. 1436	138	VS. 1190	169	Hr. 1451
108	Hr. 5796	139	Hr. 3005	170	Hr. 2288
109	VS. 1082	140	VS. 3331	171	O. 3155
110	DK. 931	141	D. 171	172	Hr. 3207
111	Hr. 3478	142	O. 3158	173	Hr. 4394
112	DK. 1298	143	VS. 3227	174	DK. 1510
113	B. 290	144	Hr. 1400	175	E. 2217
114	Hr. 3767	145	DK. 288 (?)	176	DK. 1892
115	VS. 953	146	O. 2631	177	VS. 1573
116	L. 650	147		178	Hr. 1161
117	Hr. 3732	148	Hr. 2022	179	Sd. 2010
118	O. 51	149	Hr. 4586	180	Sd. 1731
119	U. 1814	150	Hr. 5945	181	Hr. 5656
120	Hr. 5206 (?)	151	Hr. 5676	182	Hr. 3277
121	Hr. 4573	152	L. 291	183	O. 2077

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM NO.	TEXT No.	MUSEUM No
184		215	Hr. 3730	247	DK. 12
185	E. 323	216	DK. 2363	248	Sd. 570
186	DK. 3054	217	Hr. 2883	249	Hr. 2582
187	Hr. 4385	218	DK. 2220	250	DK. 3279
188		219		251	Hr. 4436
189	E. 1521	220	Hr. 1575	252	Hr. 4519
190	VS. 1779	221	Sd. 1553	253	Hr. 4411
191	L. 742	222	E. 345	254	L. 899
192	Hr. 4400	223	E. 1154	255	Hr. 3732
193	Hr. 4492	224	Hr. 99	256	Hr. 2522
194	VS. 1468	225	"stupa"	257	D. 316
195		226	Hr. 4356	258	DK. 1541
196	Hr. 2863	227	VS. 2374	259	E. 976
197	Hr. 1804	228	Hr. 5594	260	VS. 3546
198	C. 2072	229	DK. 92	261	Hr. 4054
199		230	C. 2691	262	E. 1345
200	DK. 596	231	Hr. 5788	263	Hr. 2596
201	E. 829	232	VS. 3359	264	
202	C. 3070	233	Hr. 5085	265	Hr. 5772
203	DK. 2971	234	Hr. 4601	266	
204	D. 619	235	Hr. 4161	267	Hr. 5310
205	Hr. 4291	236	VS. 3154	268	
206	VS. 3332 (B)	237	VS. 49	269	L. 5
207	DK. 108	238	VS. 2328	270	DK. 188
208	VS. 1059	240	DK. 2189	271	D. 552
209	Hr. 3336	241	C. 2892	272	C. 1956
210	Hr. 5597	242	Hr. 5167	273	VS. 3595
211	Hr. 4264	243	Hr. 3841	274	Hr. 5789
212	Hr. 4965	244	Hr. 9872	275	D. 289
213	Hr. 1951	245	Hr. 140	276	VS. 2542
214	D. 208	246	C. 181	277	B. 608

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT NO.	MUSEUM No.
278	Hr. 841	309	DK. 3069	340	Hr. 582
279	E. 1585	310	Hr. 1694	341	DK. 1522
280	Hr. 167	311	Hr. 4945	342	B. 428
281	Hr. 4368	312	VS. 880	343	
282	E. 1094	313	E. 1912	344	VS. 1469
283	E. 653	314	E. 250	345	Hr. 4628
284	Hr. 4110	315	Hr. 4435	346	E. 2094
285	2147	316	Hr. 5030	347	Hr. 5699
286	B. 383	317	VS. 1	348	Hr. 4994
287	Hr. 4957 (?)	318	DK. 388	349	DK. 2485
288	E. 187	319	Hr. 683	350	O. 435
289	Hr. 3506	320	VS. 2372	351	VS. 3389
290	O. 3055	321	Hr. 439 (?)	352	DM. 67
291	E. 491	322	VS. 2652	353	Hr. 2973
292	Hr. 4124	323	VS. 1799	354	Hr. 4111
293	VS. 1666	324		355	VS, 2664
294	VS. 3391	325	DK. 160	356	Hr. 4986
295	O. 2024	326	VS. 3094	357	Hr. 398
296	VS. 3494	327	O. 2073	358	VS. 778
297	VS. 505	328	Hr. 3791	359	E. 2006
298	O. 2327	329	B. 426	360	Hr. 640
299	Hr. 2723	330	Sd. 2245	361	Hr. 4869
300	Hr. 272 (?)	331	VS. 823	362	Hr. 2406
301	DK. 1528	332	Hr. 743	363	VS. 3414
302	Hr. 4384	333	D. 21	364	VS. 2989
303	Hr. 5629	334	E. 2053	365	Hr. 5516
304	VS. 855	335	Hr. 5320	366	L. 476
305	Hr. 262	336		367	O. 3024
306	O. 194	337	VS. 2262	368	Hr. 5607
307	E. 1008	338		369	E. 297
308	Hr. 164	339	Hr. 3732	370	VS. 4076

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No
371	VS. 2541	402	DK. 1519	433	E. 1651
372	VS. 1438	403	Hr. 4238	434	Hr. 4244
373	VS. 47	404	O. 2114	435	E. 2484
374	E. 'spoil earth'	405	DK. 402	439	Hr. 5804
375	Hr. 4625	406	F. 46	440	L. 323
376	C. 3133	407	Hr. 5261	441	VS. 3026
377		408	VS. 1329	442	Hr. 2657
378	DM. 56	409	VS. 1037	443	DK. 2137
379	VS. 1673	410	DK. 121	444	VS. 3093
380	DK. 2130	411	Hr. 4560	445	E. 1348
381	O. 3201	412	Hr. 5596	446	DK. 681
382	Hr. 1110	413	O. 1863	447	Hr. 4348
383	Hr. 4409	414	VS. 1558	448	E. 1846
384	DK. 2294	415	E. 1187	449	B. 586
385		416	Sd. 1930	450	Hr. 3084
386	E. 388	417	VS. 3518	451	Hr. 5028
387	O. 329	418		452	O. 606
388	Hr. 629	419	Hr. 456A	453	O. 2582
389	Sd. 1850	420	VS. 349	454	L. 785
390	VS. 2040	421	VS. 1819	455	O. 675
391	Hr. 2595	422	DM. 169	456	VS. 235
392	D. 90	423	C. 1391	457	
393	Hr. 5057	424	C. 206	458	Hr. 5225
394	DK. 33	425	1893	459	Hr. 4503
395	E. 230	426	Hr. 4386	460	Hr. 583
396	VS. 3172	427	Hr. 1950	461	Hr. 1793
397	E. 470	428	DK. 91	462	Hr. 4318
398	O. 2823	429	E. 2401	463	DK. 1542
399	O. 810	430	DK. 744	464	Hr. 4364
400	C. 2023	431	Hr. 4635	465	Hr. 4387
401	C. 2394	432	Hr. 5414	466	VS. 59

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.
467	DK. 209	498	DK. 2540	9	2642
468	VS. 1754	499	DK. 2869	10	2632
469	Hr. 4098	500	C. 427	11	2568
470	Hr. 5949	501	D. 426	12	995
471	Hr. 5787	502	C. 2372	13	2056
472	VS. 3503	503	Sd. 2172	14	1877
473	L. 904	504	B. 63	15	3758
474	C. 2767	505	VS. 1574	16	2918
475	Hr. 5195	506	C. 2896	17	2569
476	C. 290	507	Hr. 4952	18	1242
477	DK. 2797	508	D. 392	19	995
478	C. 353	509	VS. 1753	20	3091
479	Hr. 4055	510		21	1261
480	Hr. 4355	511	VS. 3027	22	726
481	Hr. 5611	512	E. 1886	23	1425
482	Hr. 5972	513	Hr. 5311	24	1280
483	Hr. 1965	514	E. 2648	25	2630
484	VS. 665	515	E. 252	26	3027
485	DK. 1545	516	DK. 3205	27	1722
486	VS. 3450	517	L. 351	28	1423
487	Hr. 1696	518		29	3851
488	Hr. 5992			30	1203
489	L. 436	H A R A P P A		31	2325
490	Hr. 5635	1	2648	32	2544
491		2	2483	33	2125
492	DK. 2651	3	3062	34	3678
493	Hr. 5971	4	3266	35	2730
494	Hr. 373	5	3035	36	3668
495	C. 2853	6	2868	37	3286
496	D. 417	7	1419	38	2728
497	L. 384	8	3171	39	1154

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.
40	80	71	1279	102	3333
41	2993	72	1277	103	2890
42	2410	73	2256	104	2866
43	3173	74		105	2867
44	3176	75		106	3890
45	94	76		107	2262
46	1876	77		108	2057
47	2177	78	1665	109	2982
48	1497	79	2999	110	649
49	1219	80	2528	111	2916
50	2897	81	1260	112	3581
51	1172	82	397	113	2478
52	1382	83	1347	114	2787
53	2430	84	1416	115	1792
54	1963	85	B. $\frac{3}{4}$	116	1123
55	2631	86	F. $\frac{6}{7}$	117	657
56	2807	87	647	118	2270
57	1263	88	2900	119	1201
58	3026	89	2697	120	2276
59	3172	90	385	121	1032
60	2481	91	558	122	1245
61		92	3608	123	114
62	1348	93	3801	124	2893
63	1262	94	3789	125	2187
64	3534	95	1646	126	3771
65	2917	96	1338	127	398
66	2429	97	1399	128	581 ?
67	559	98	2891	129	3707
68		99	615	130	2731
69	1278	100	1233	131	1259
70	1260 ?	101	2759	132	

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.
133	2812	164	1379	195	2540
134	2789	165	741	196	2693
135	21	166	1650 ?	197	3757
136	2702	167	483	198	2962
137	867	168	3545	199	
138	2703	169	1265	200	3786
139	3484	170	2532	201	1056
140	3278	171	3459	202	3803
141	3897	172	115	203	2961
142	1707	173	2390	204	3772
143	1171	174	1314	205	2531
144	2981	175	272	206	2120
145	201	176	1009	207	2392
146	3483	177	1697	208	
147	2570	178	2930	209	1055
148	2696	179	3725	210	3716
149	2431	180	1197	211	868
150	2785	181	945	212	2118
151	1204	182	781	213	517
152	2698	183	146	214	2960
153	1154 (c)	184	2820	215	3482
154	1154 (d)	185	2121	216	180
155	2356	186	2463	217	2700
156	2355	187	117	218	1080
157	2357	188	3212	219	2726
158	2257	189	116	220	1200
159	3397	190	1591	221	3644
160	3855	191	1842	222	2254
161	2554	192	2286	223	1240
162	1500	193	2281	224	2367
163	474	194	2879	225	1379

TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.	TEXT No.	MUSEUM No.
226	1962	232	768	238	2415
227	1244	233	1498	239	1872
228	1234	234	2645	240	1692
229	3791	235	1236	241	113
230	2542	236	1276	242	1380
231	614	237	627	243	725

APPENDIX II.

Explanation.

Col.II. det = determinative, ideo = ideogram

Col.III. The references are to the pages in "Egyptian Grammar" by A. H. Gardiner, and to the numbers of the signs on those pages.

Col.V. The references are to vols. VI and XVII respectively of the "Mémoire, de la Mission Archéologique de Perse" and the numbers of the signs in the Proto-Elamitic sign lists in each of these volumes.

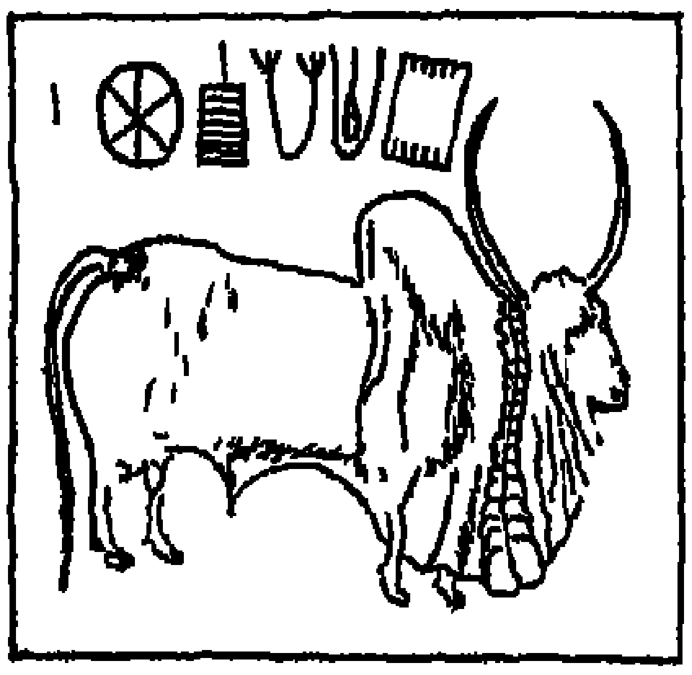
Col.VIII. The references given in simple figures are to the numbers of the ideograms in the original Appendix II, which is not included in this edition.

Cols.XI and XIV. The transliteration of the values is that followed by Bühler in his "Indische Palaeographie".

Col.XII. The numbers refer to the Tables of Proto-Indian signs in this work.

Plate I

444



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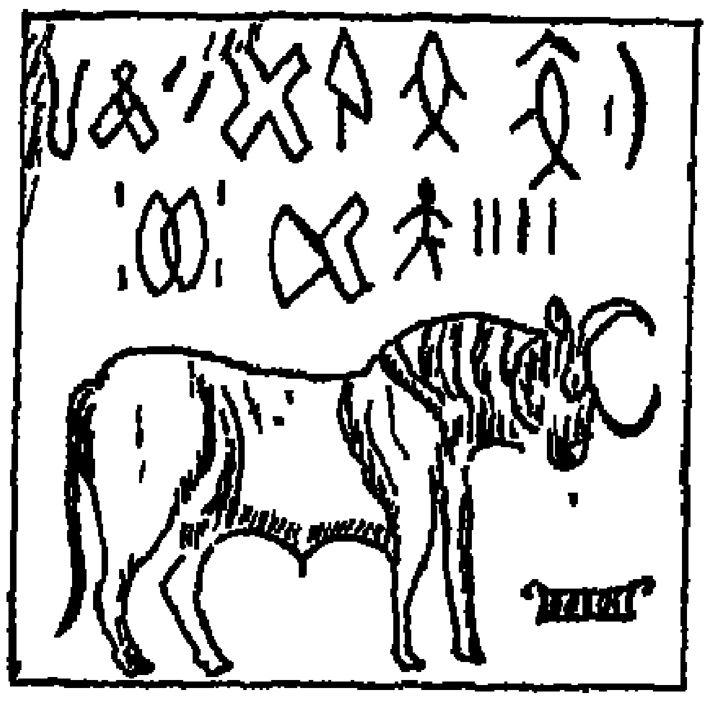

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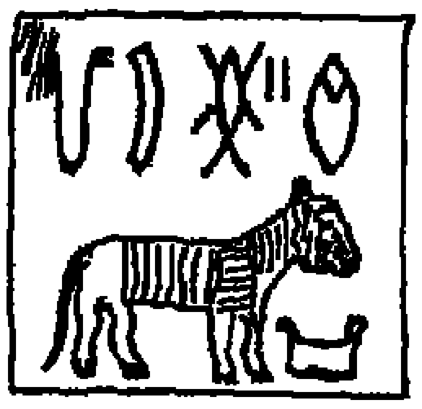

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18 c.

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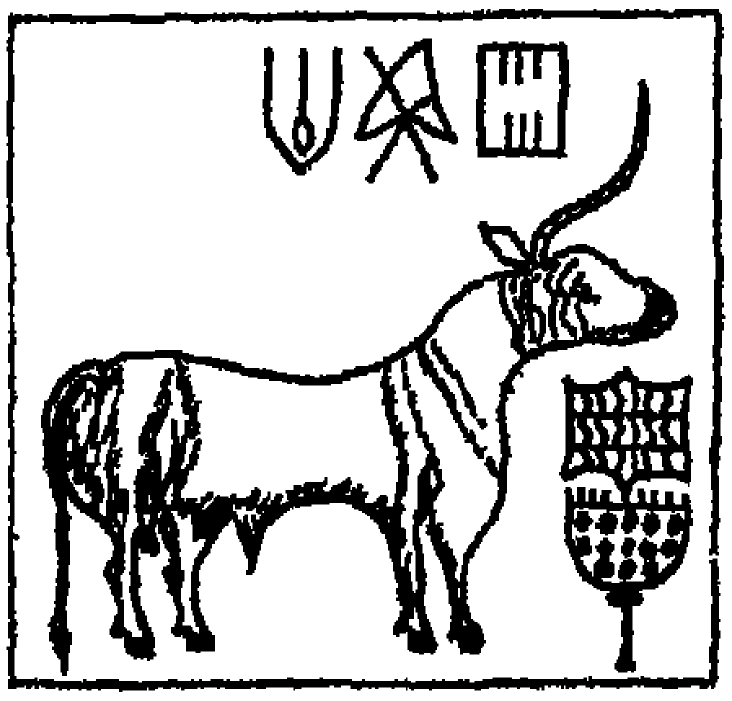

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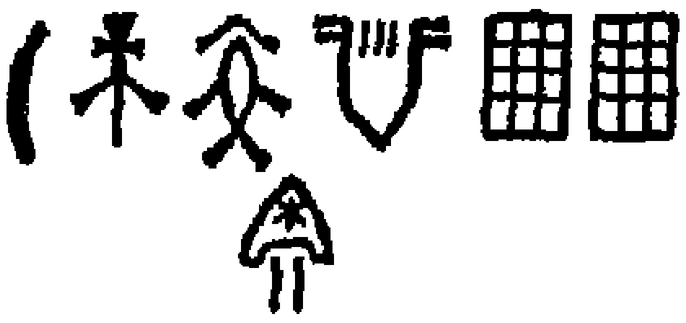

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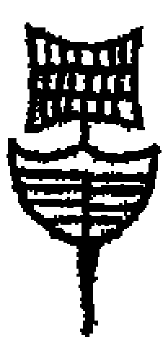

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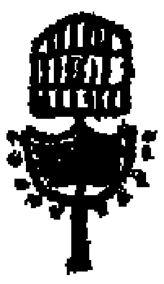

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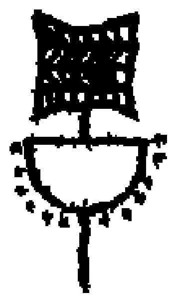

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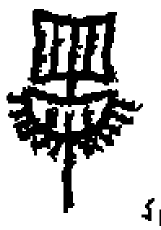

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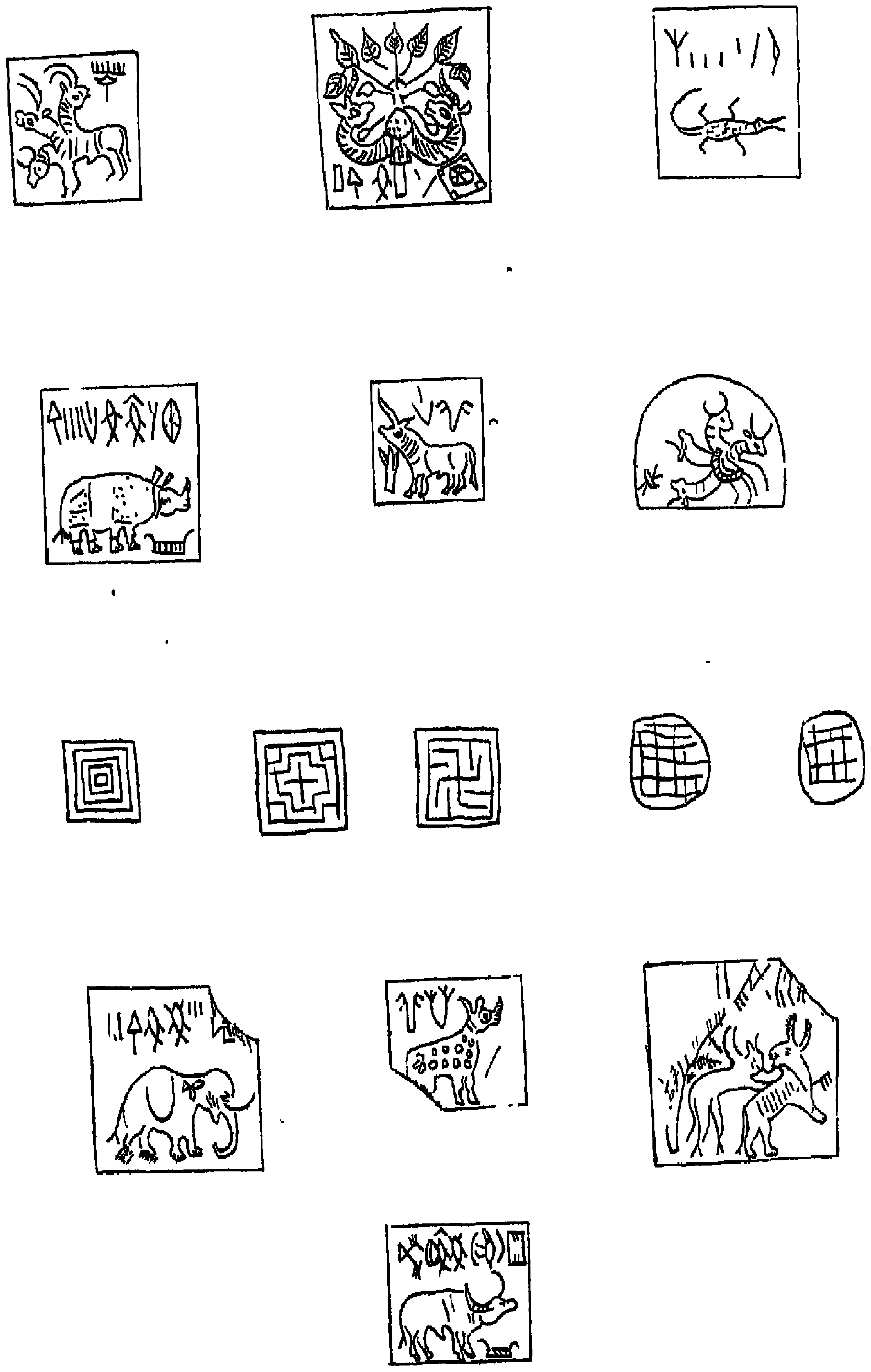
Plate I A



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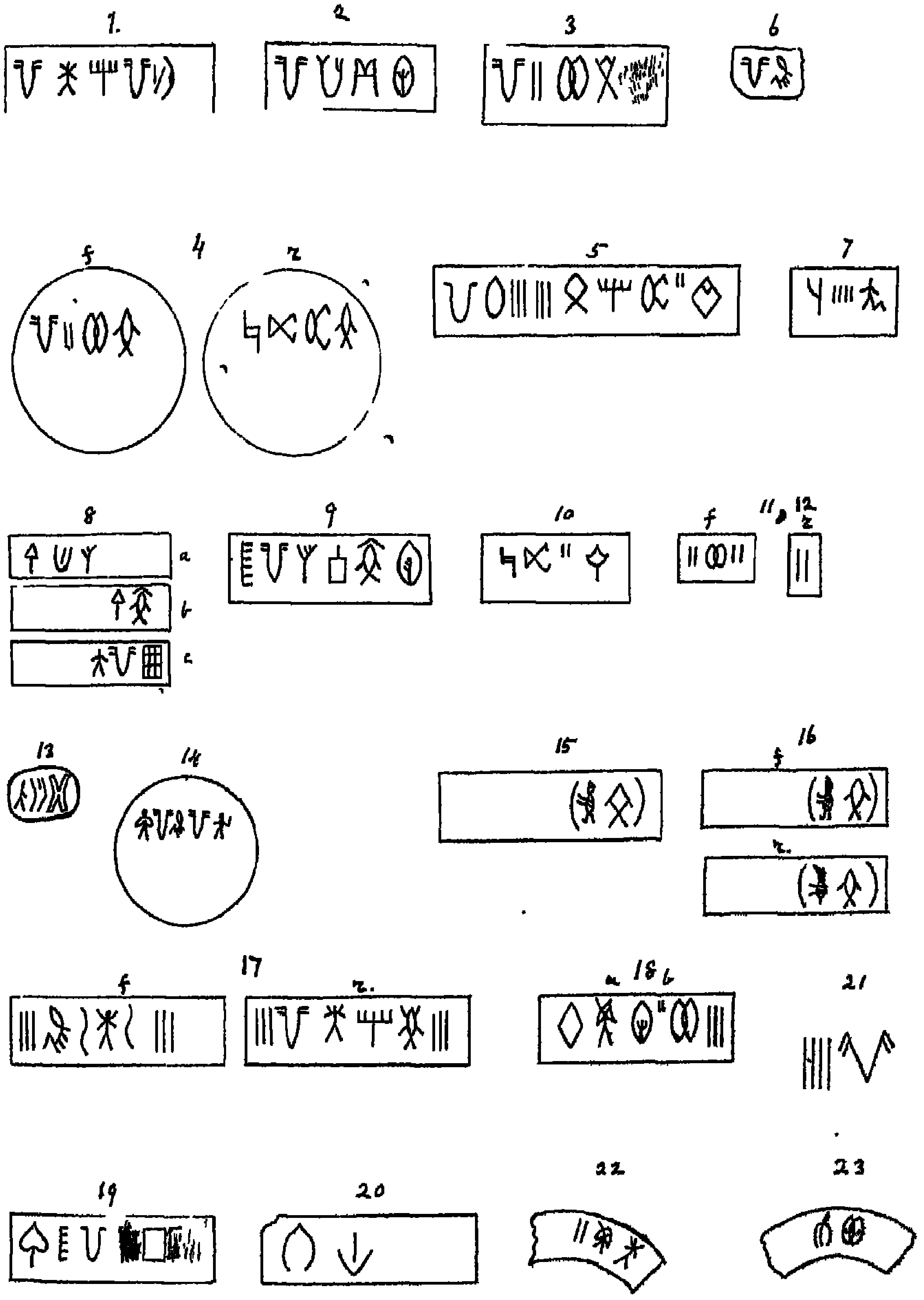

Plate III

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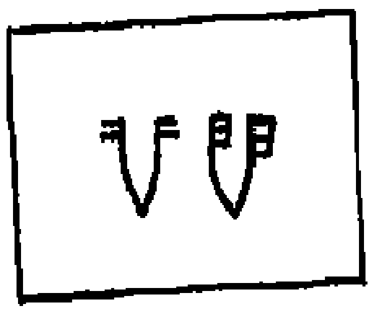
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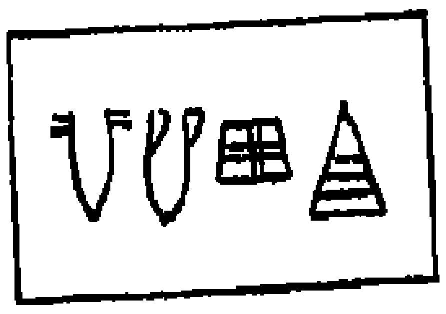
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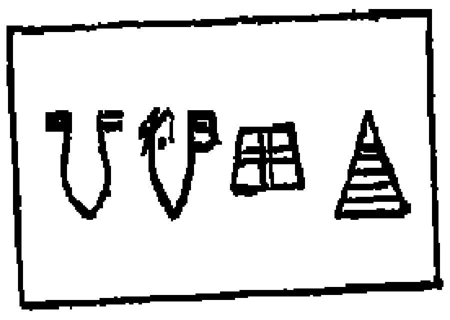
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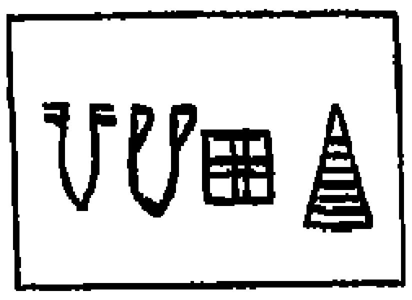

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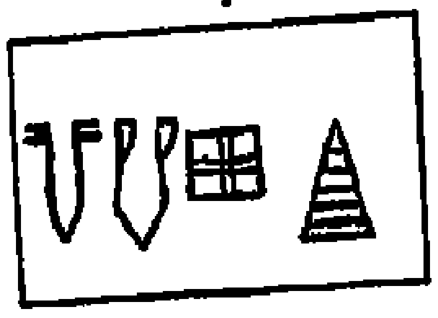
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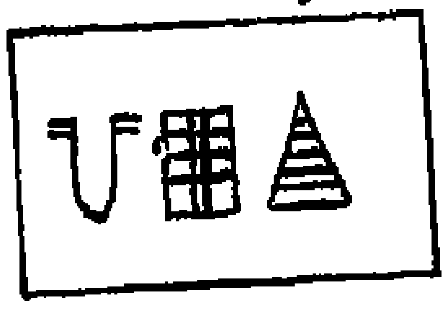
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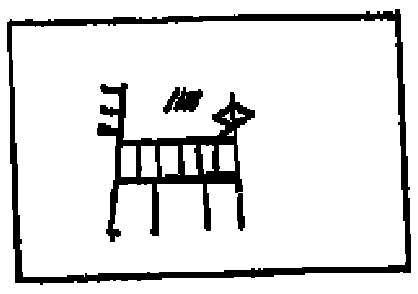

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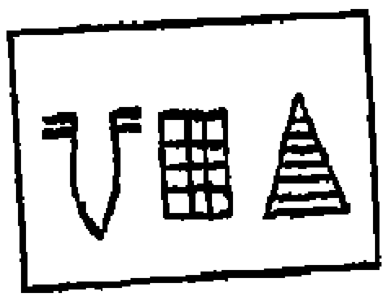
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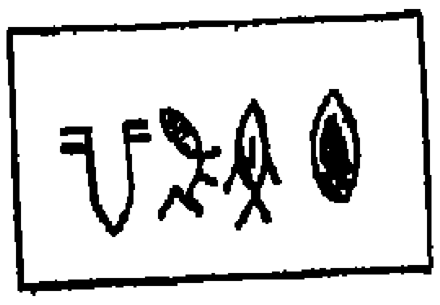
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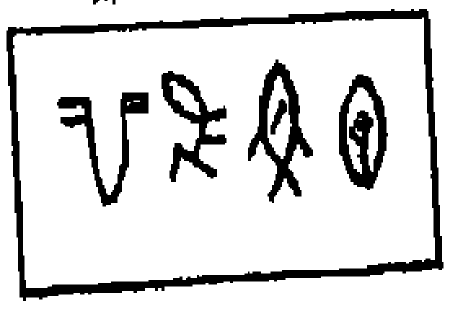
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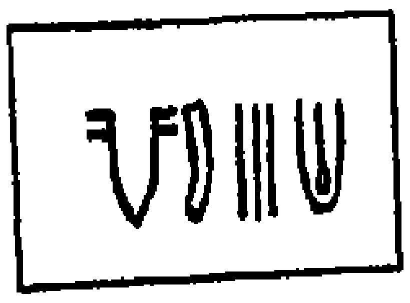

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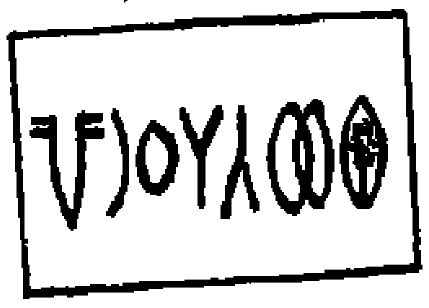
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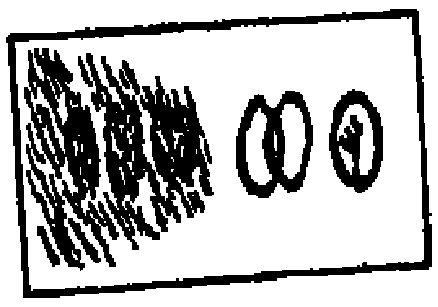
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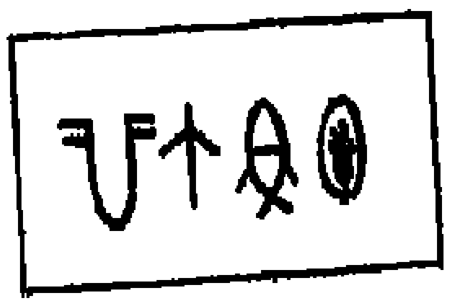
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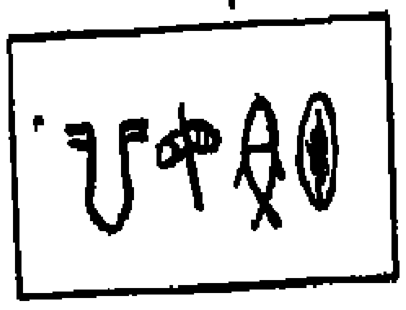

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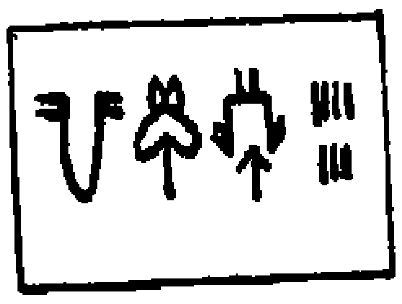
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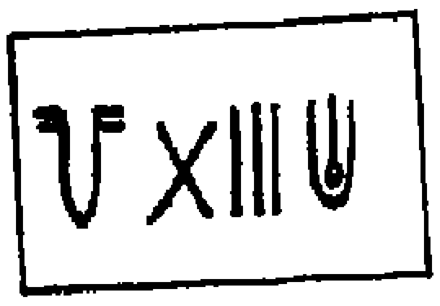
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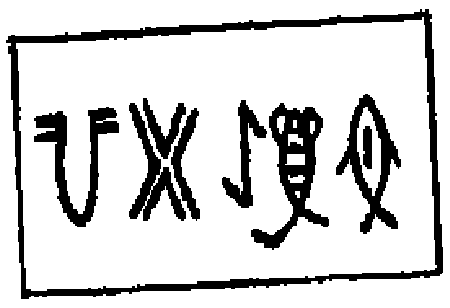
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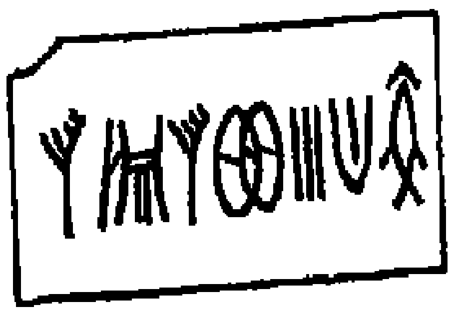

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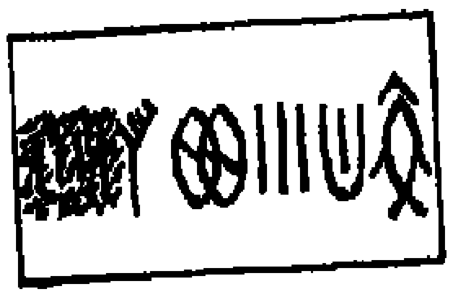
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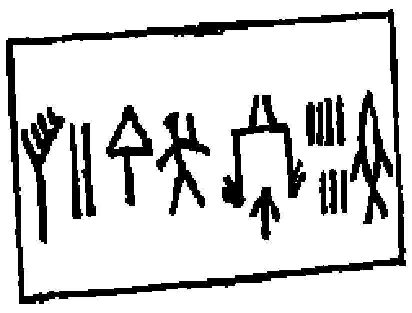

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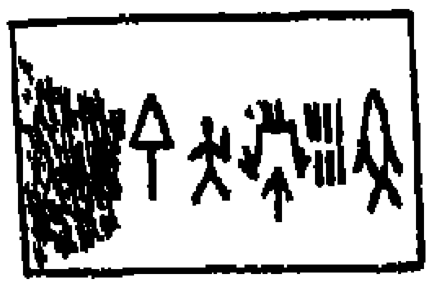
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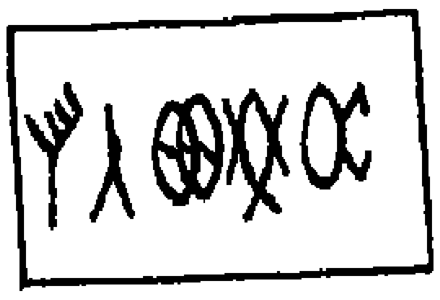
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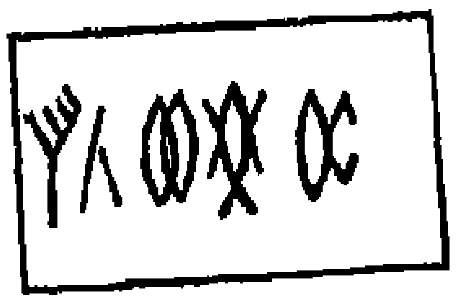
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Plate IV

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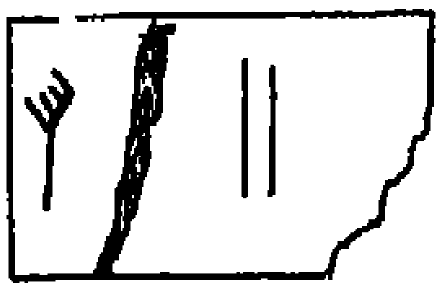

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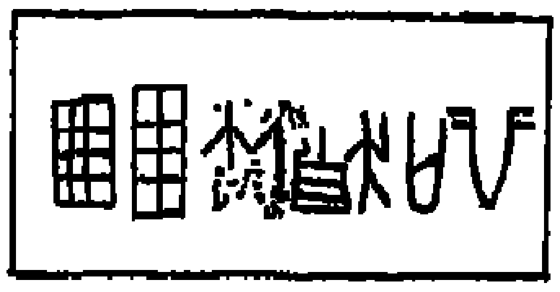

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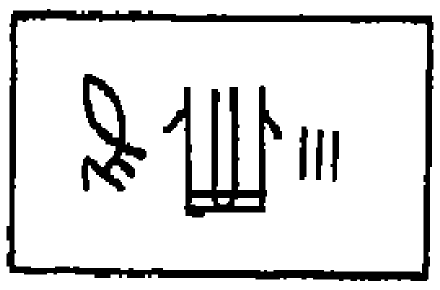

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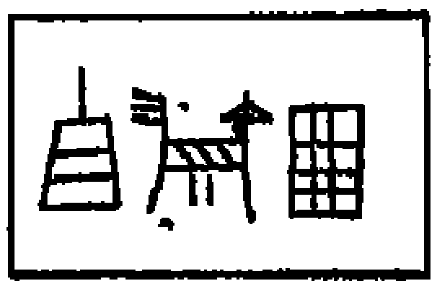

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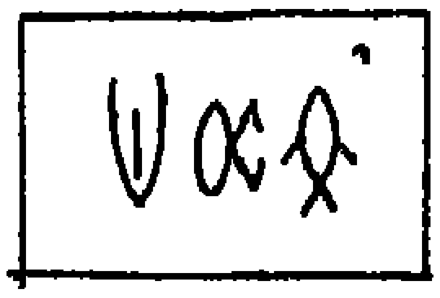

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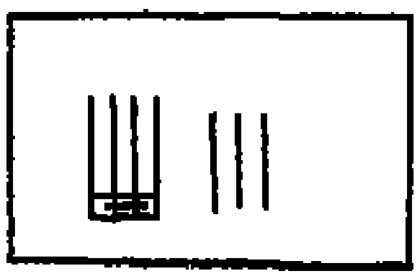

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Plate V

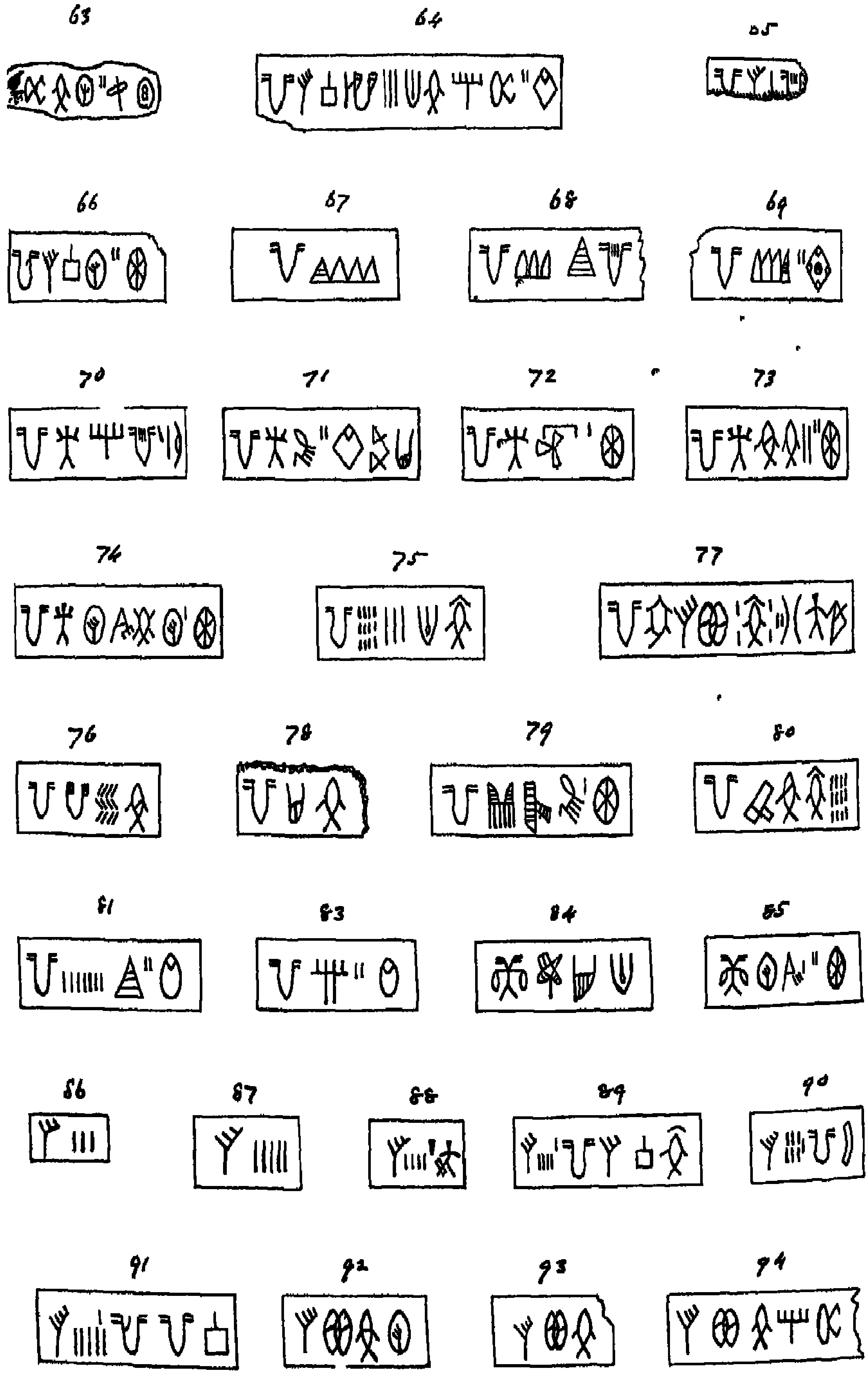
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Plate VI

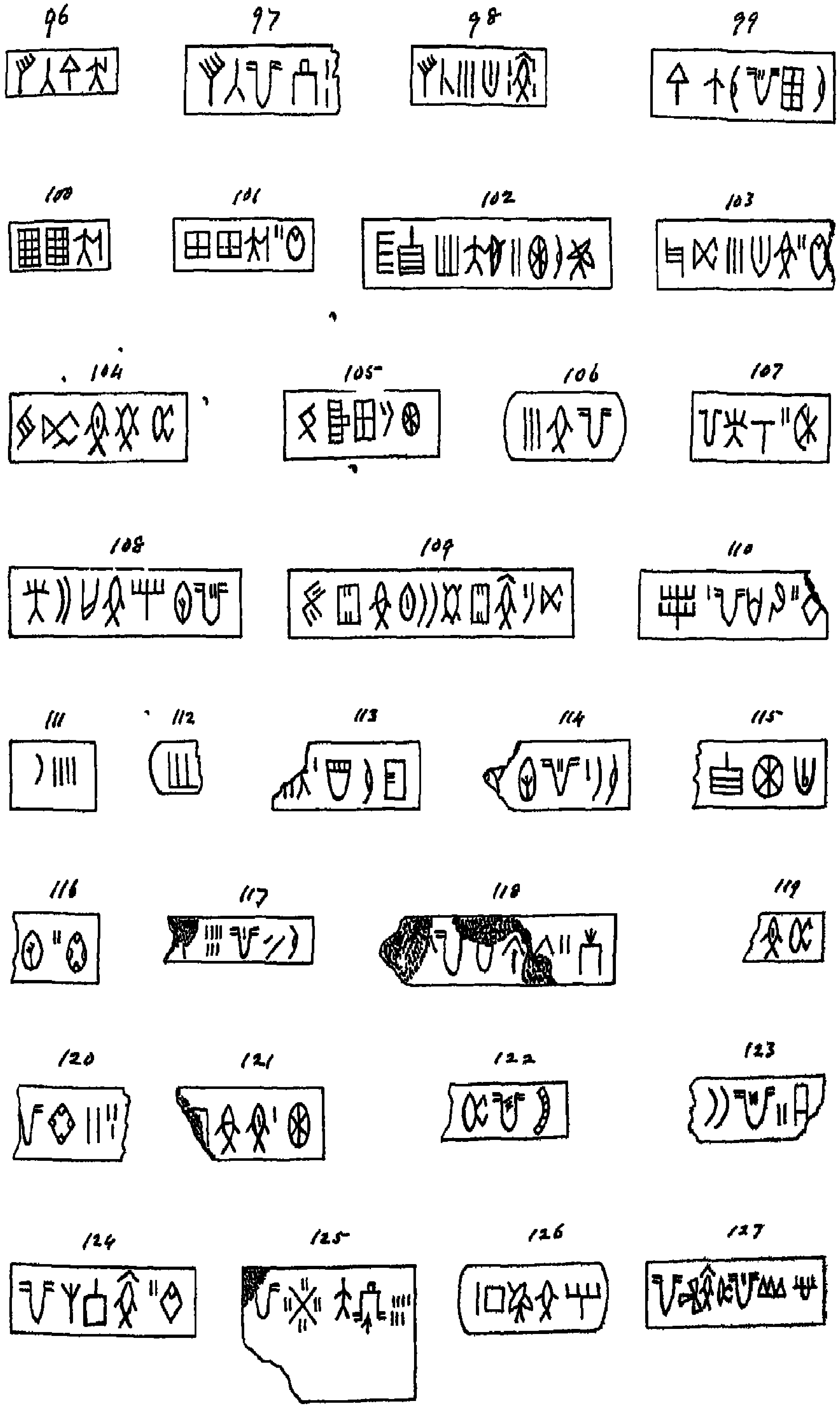
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Plate VIII

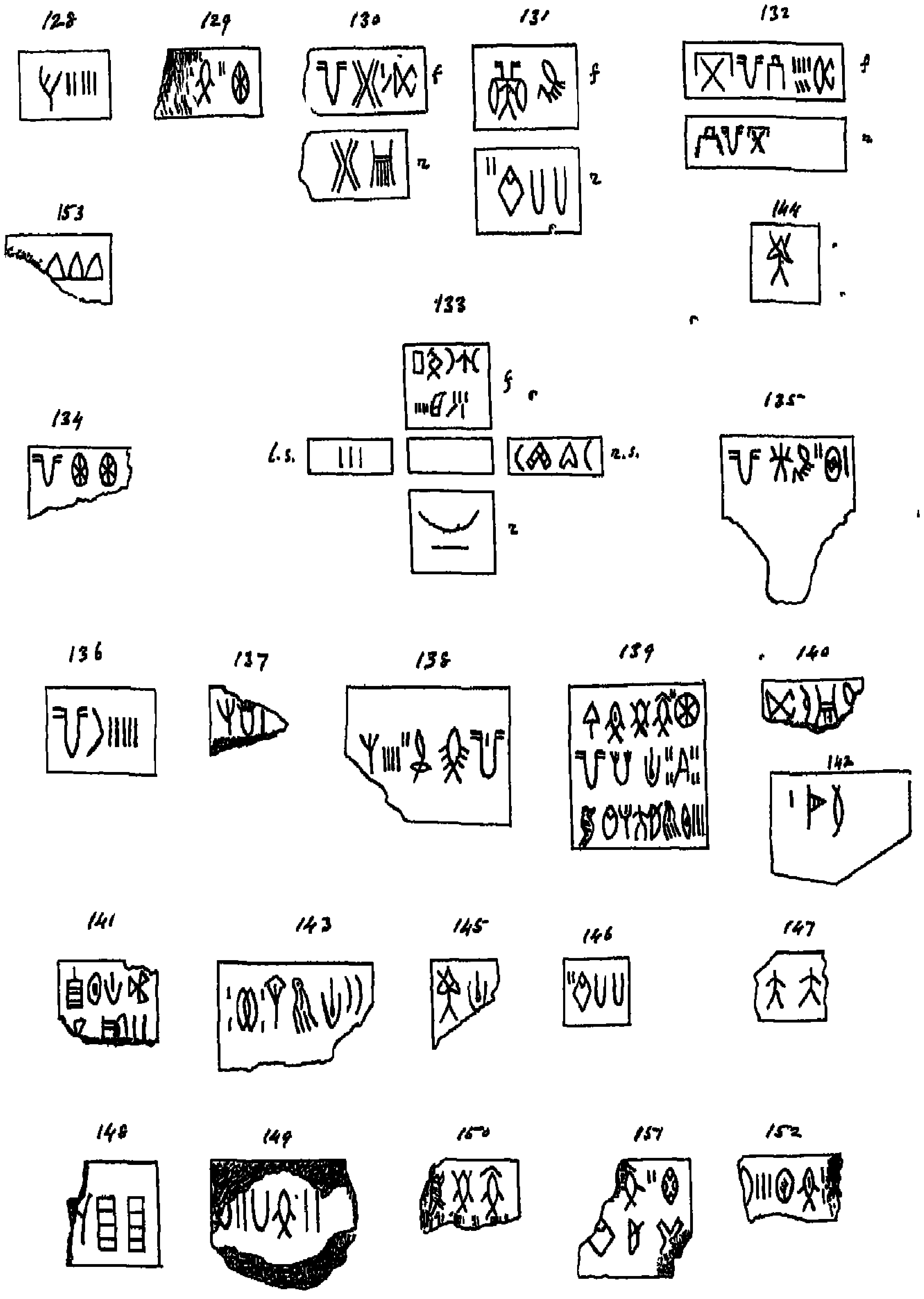
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Plate VIII

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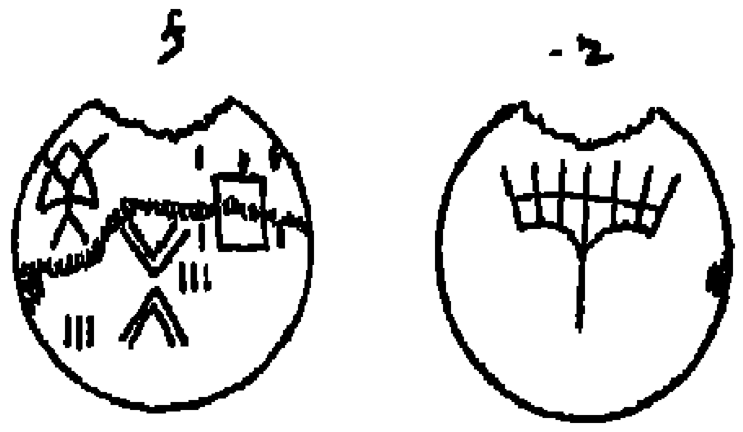

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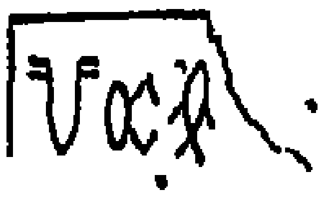

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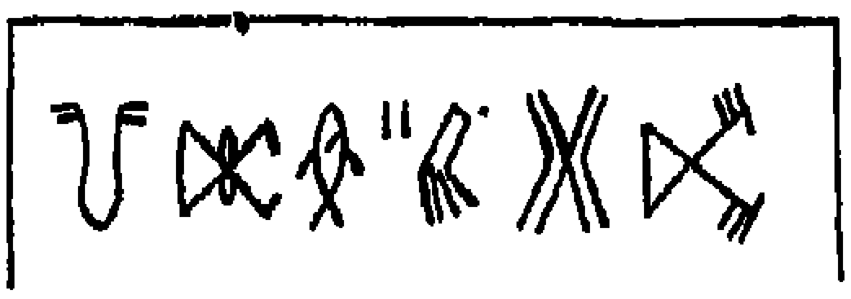

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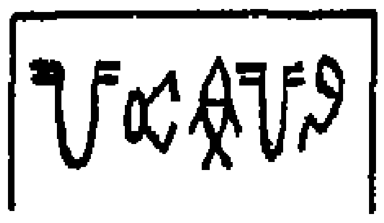

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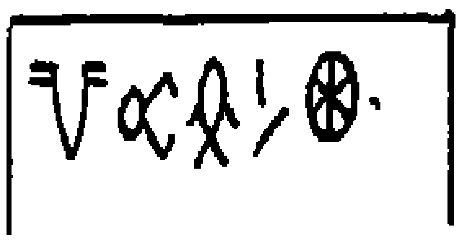

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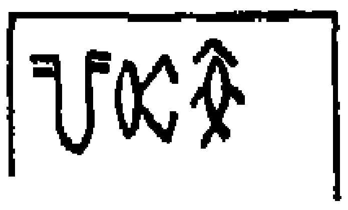

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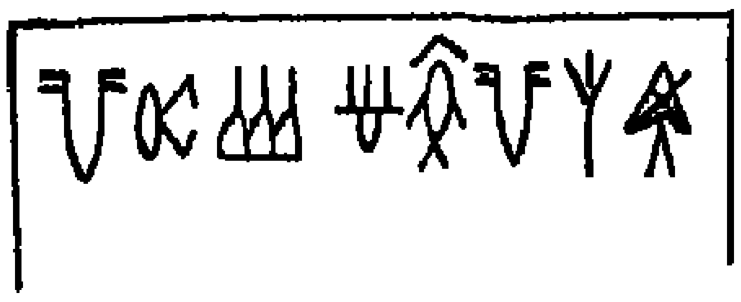

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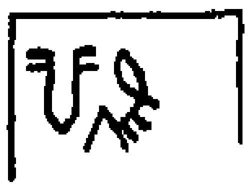

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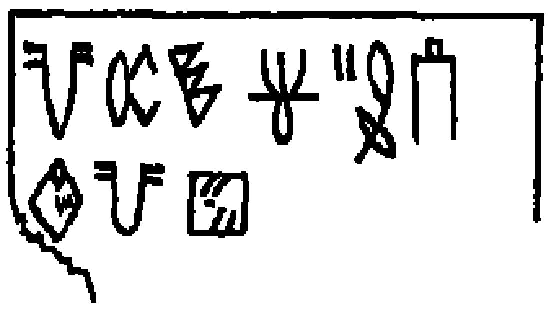

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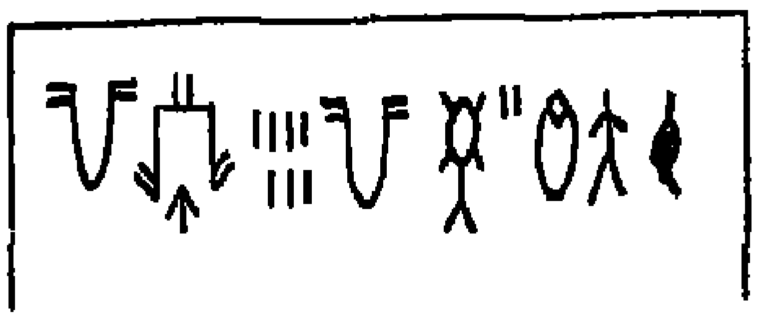

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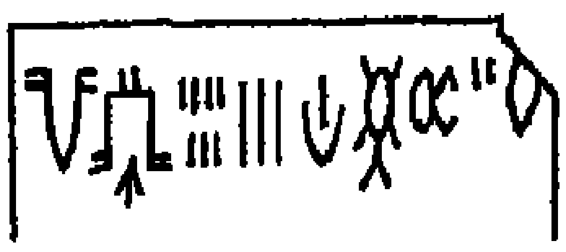

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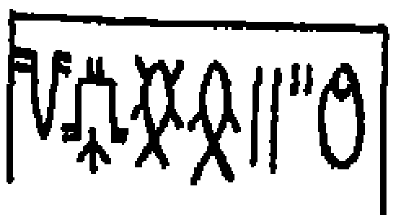

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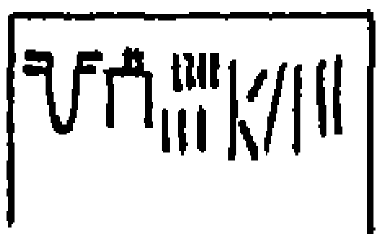

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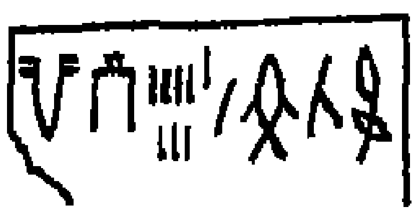

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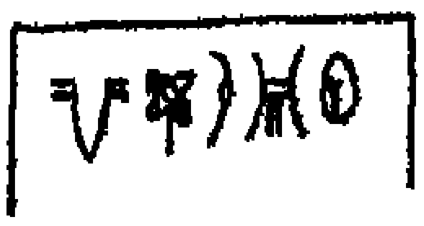

Plate IX

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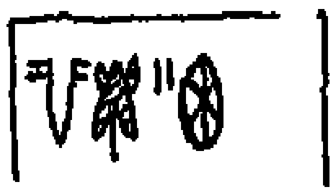

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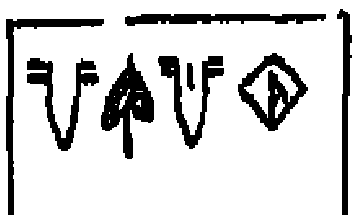

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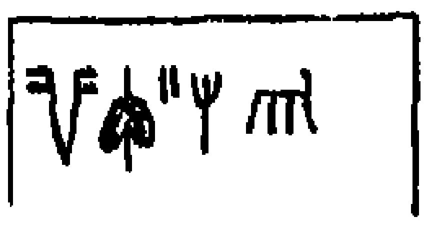

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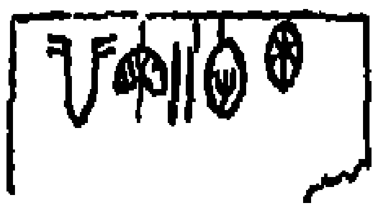

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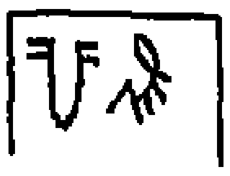

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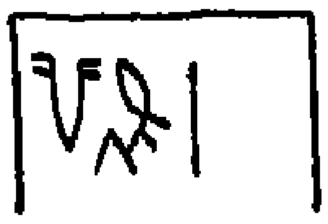

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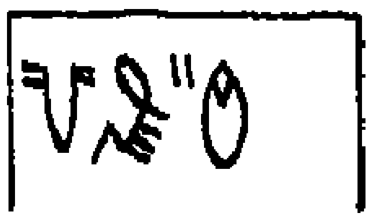

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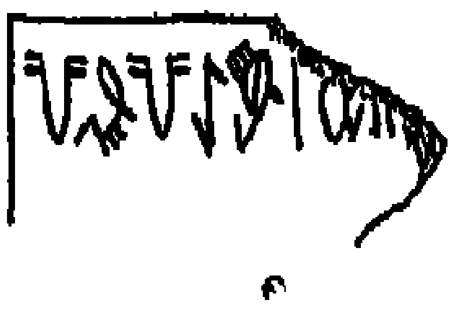

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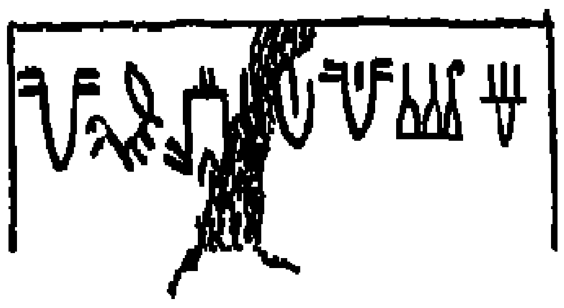

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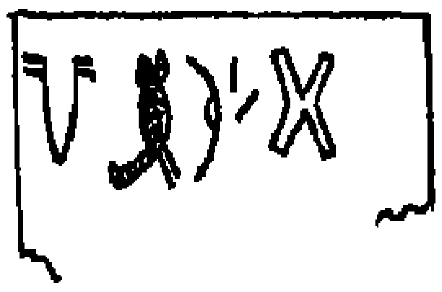

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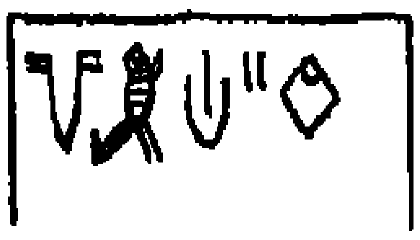

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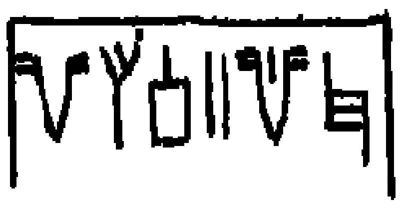

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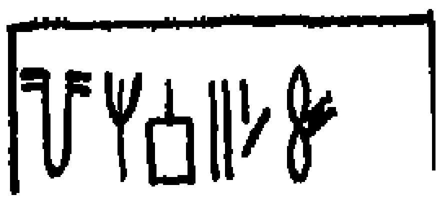

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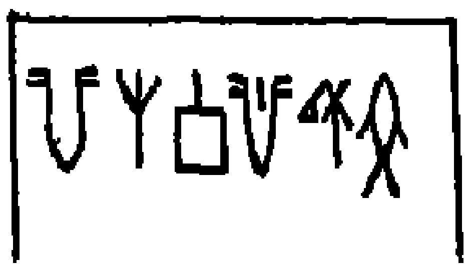

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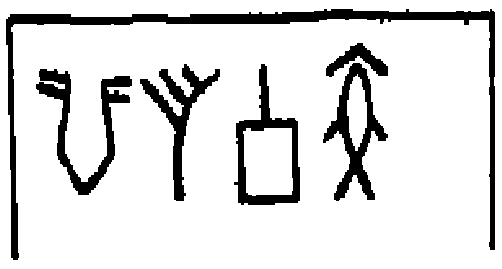

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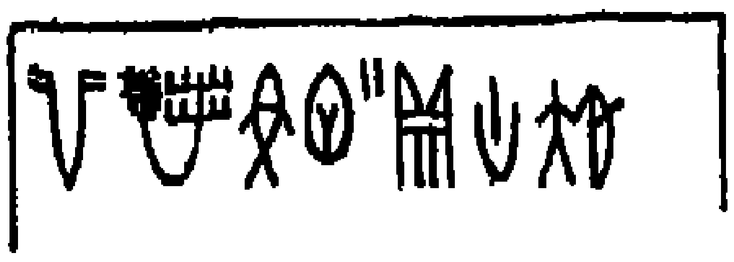

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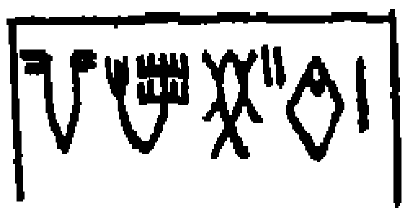

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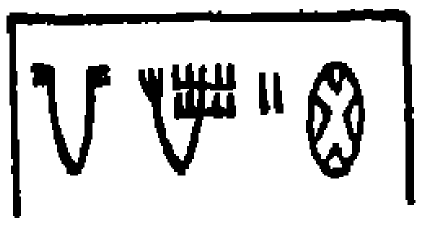

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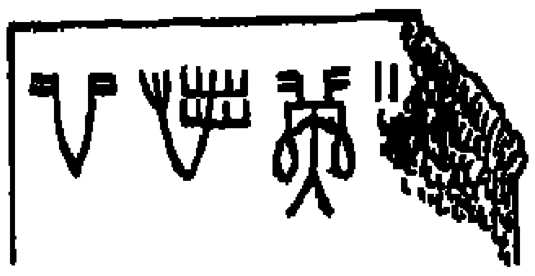

Plate X

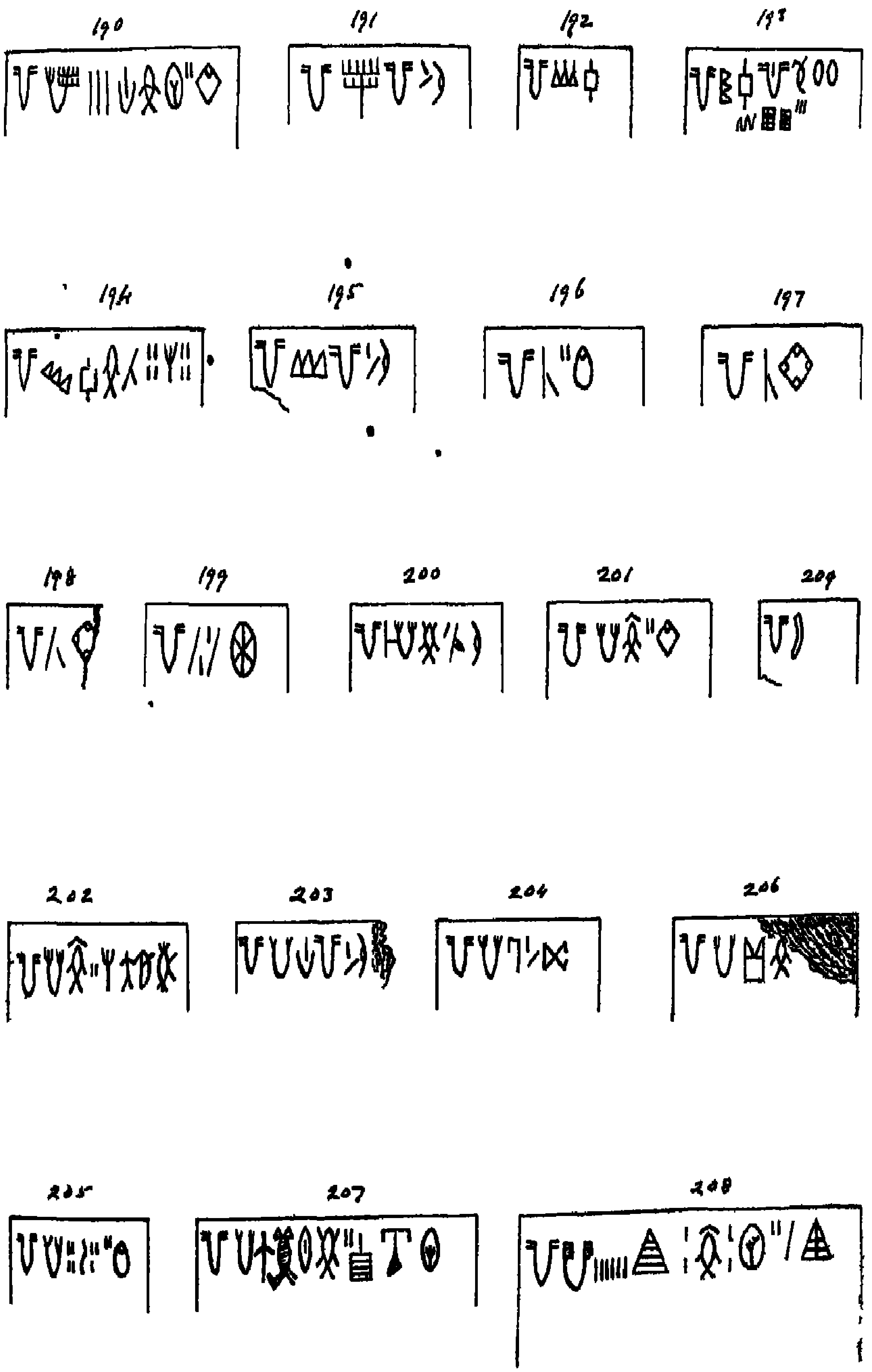
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Plate XI

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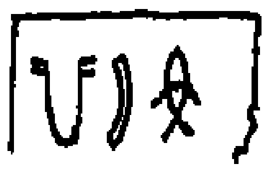

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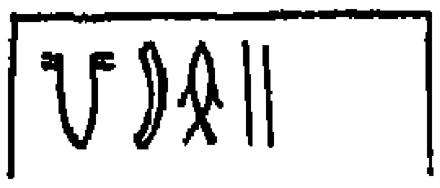

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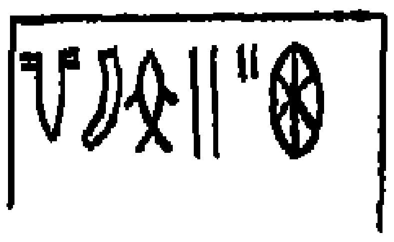

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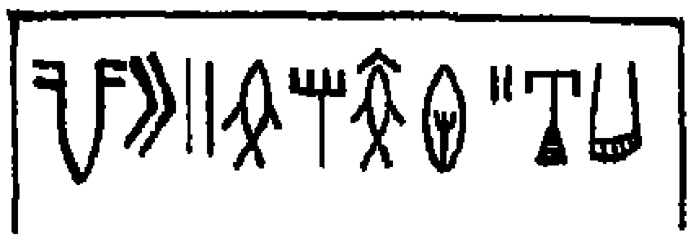

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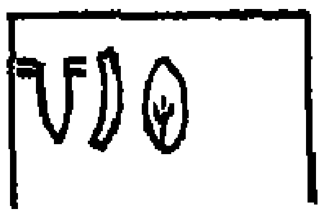

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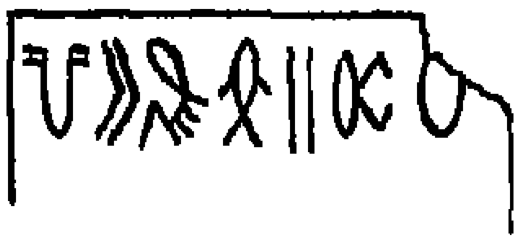

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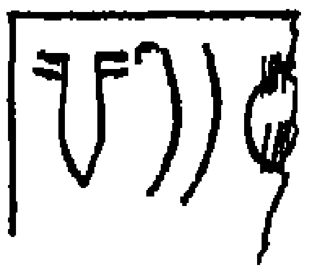

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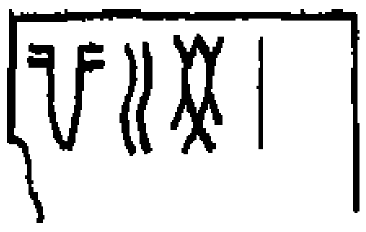

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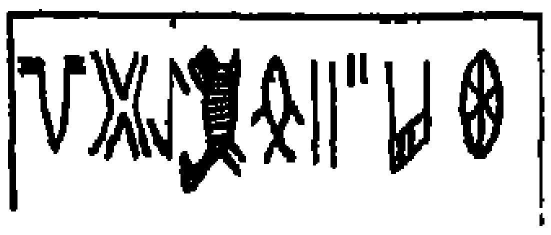

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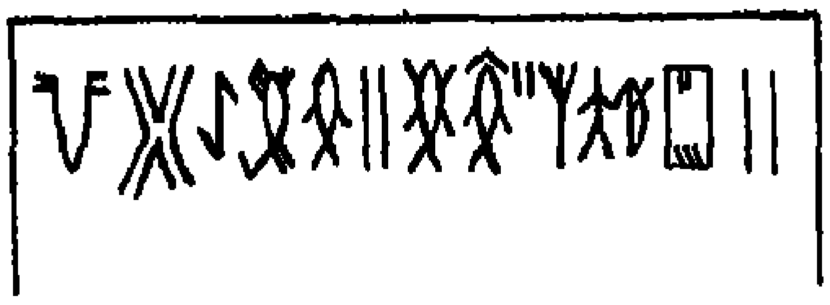

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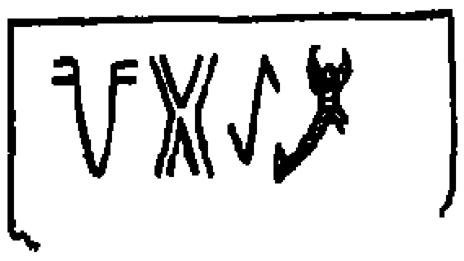

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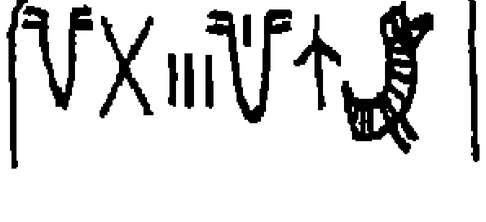

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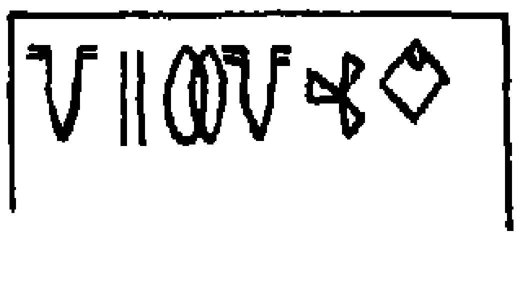

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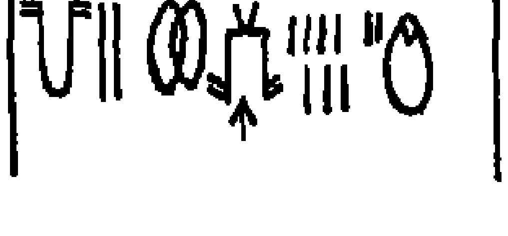

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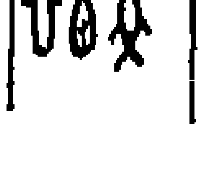

Plate XII

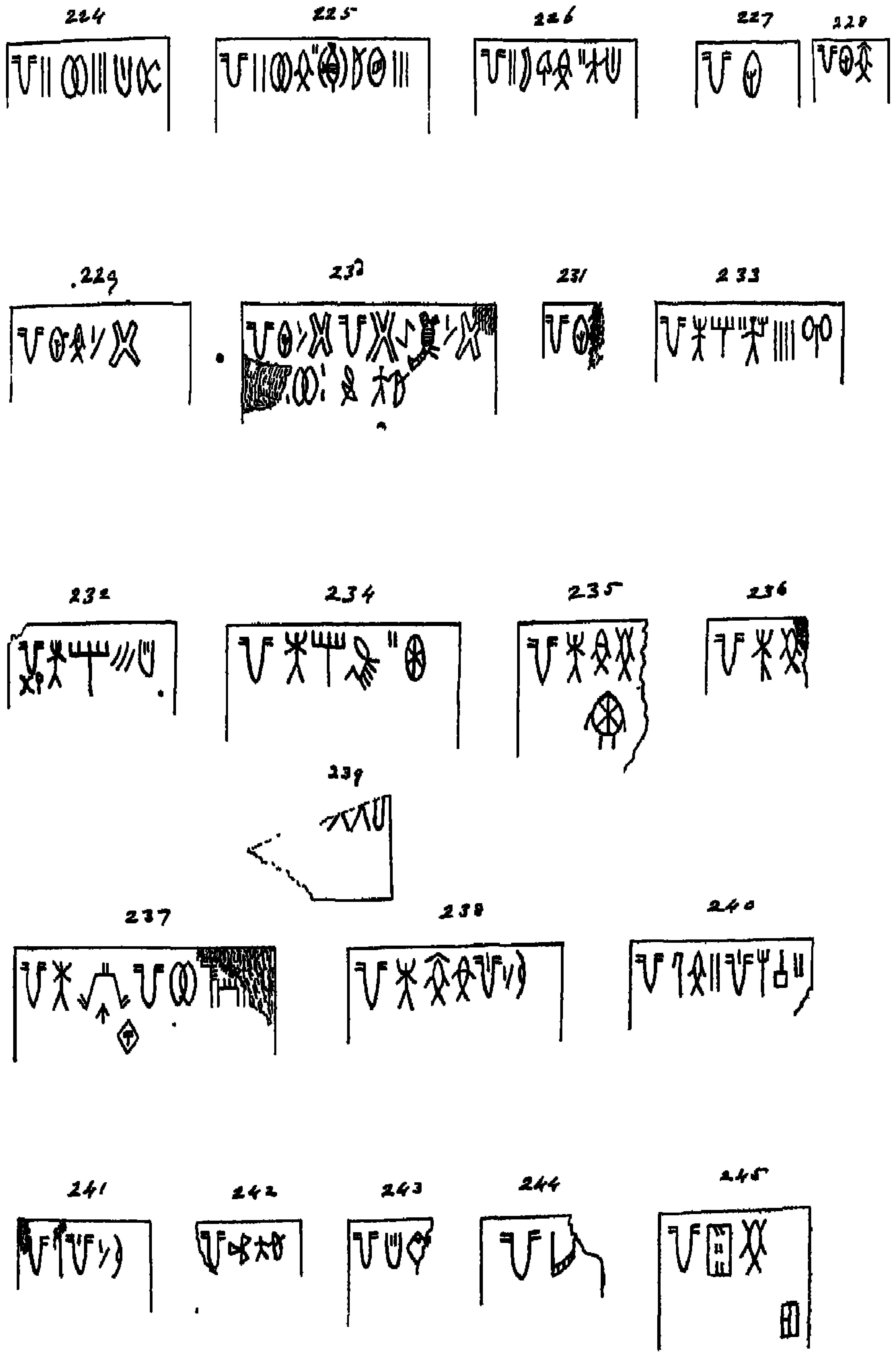
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Plate XIII

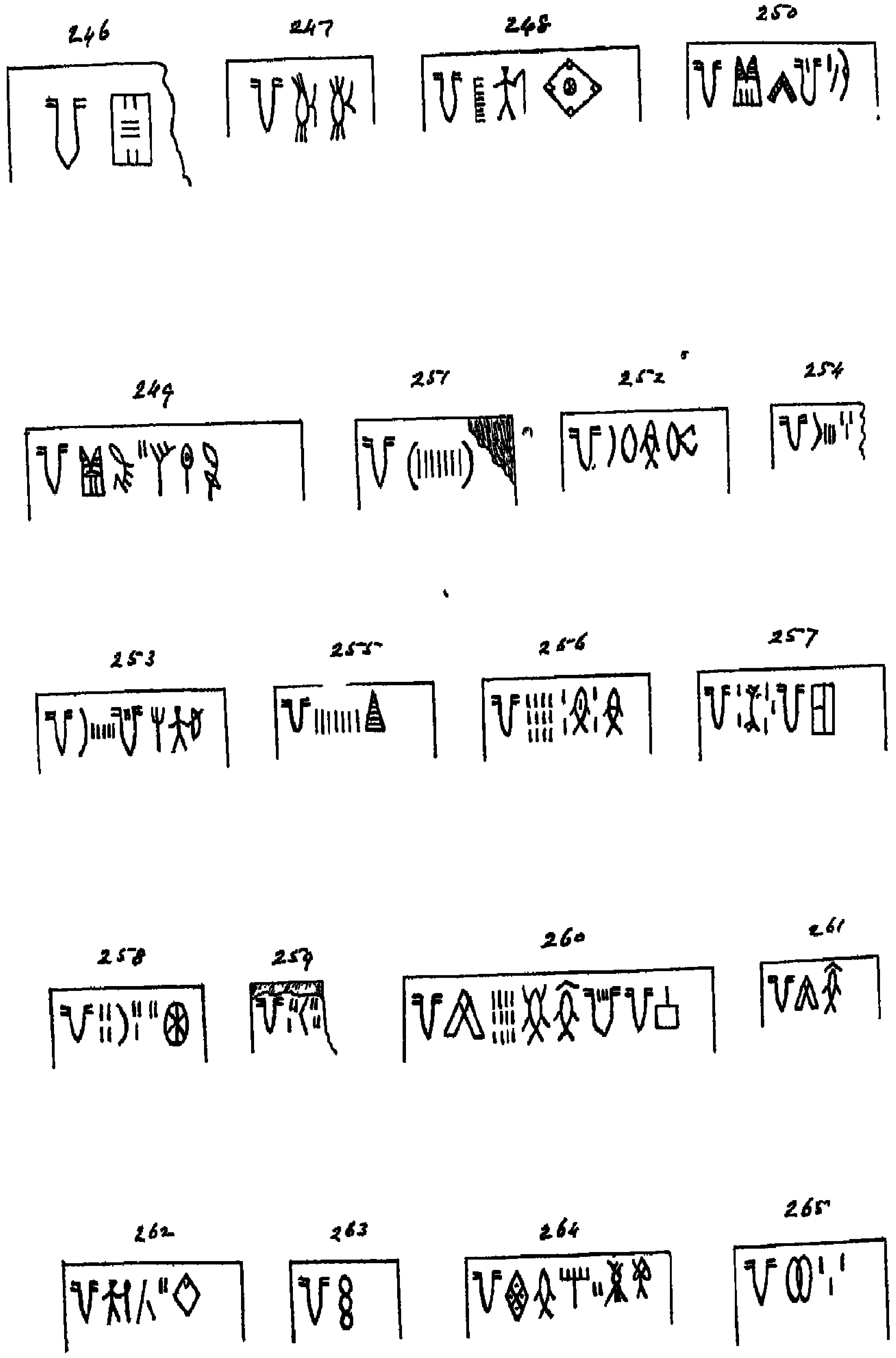
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Plate XIV

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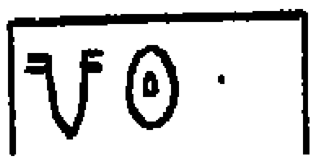

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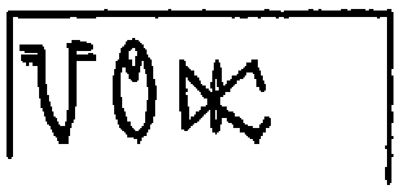

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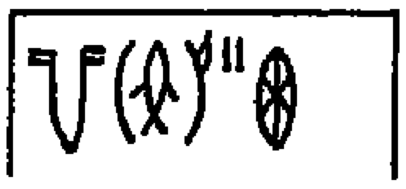

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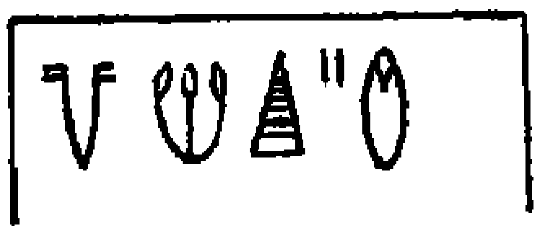

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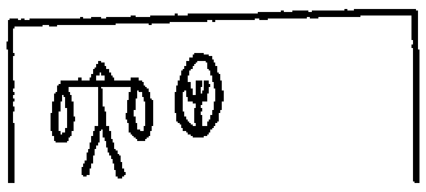

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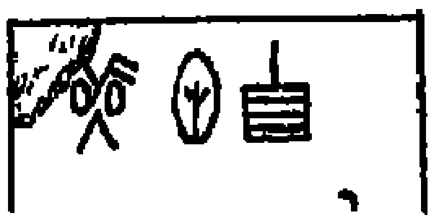

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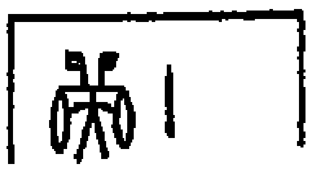

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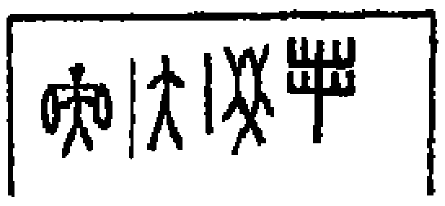

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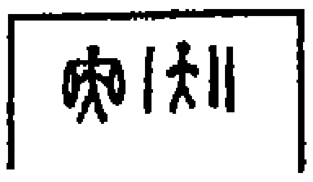

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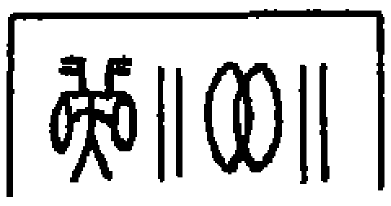

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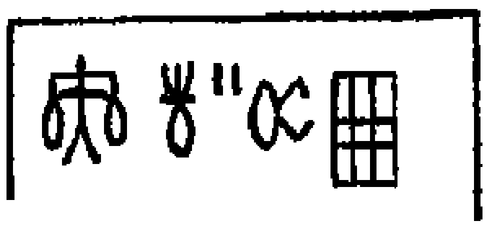

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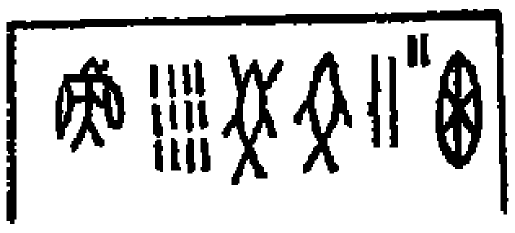

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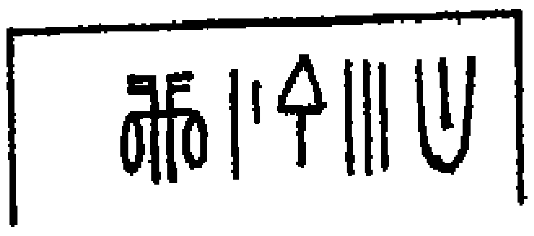

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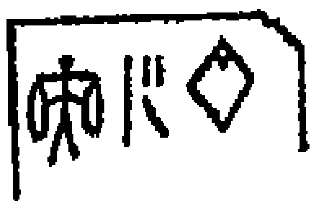

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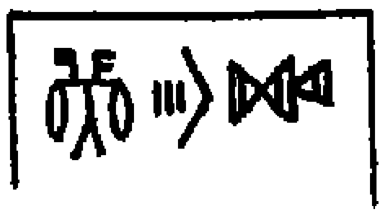

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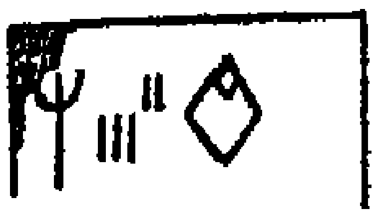

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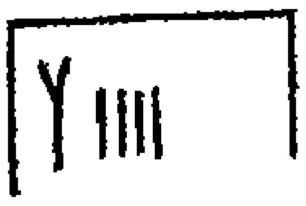

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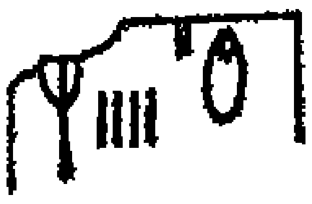

Plate XV

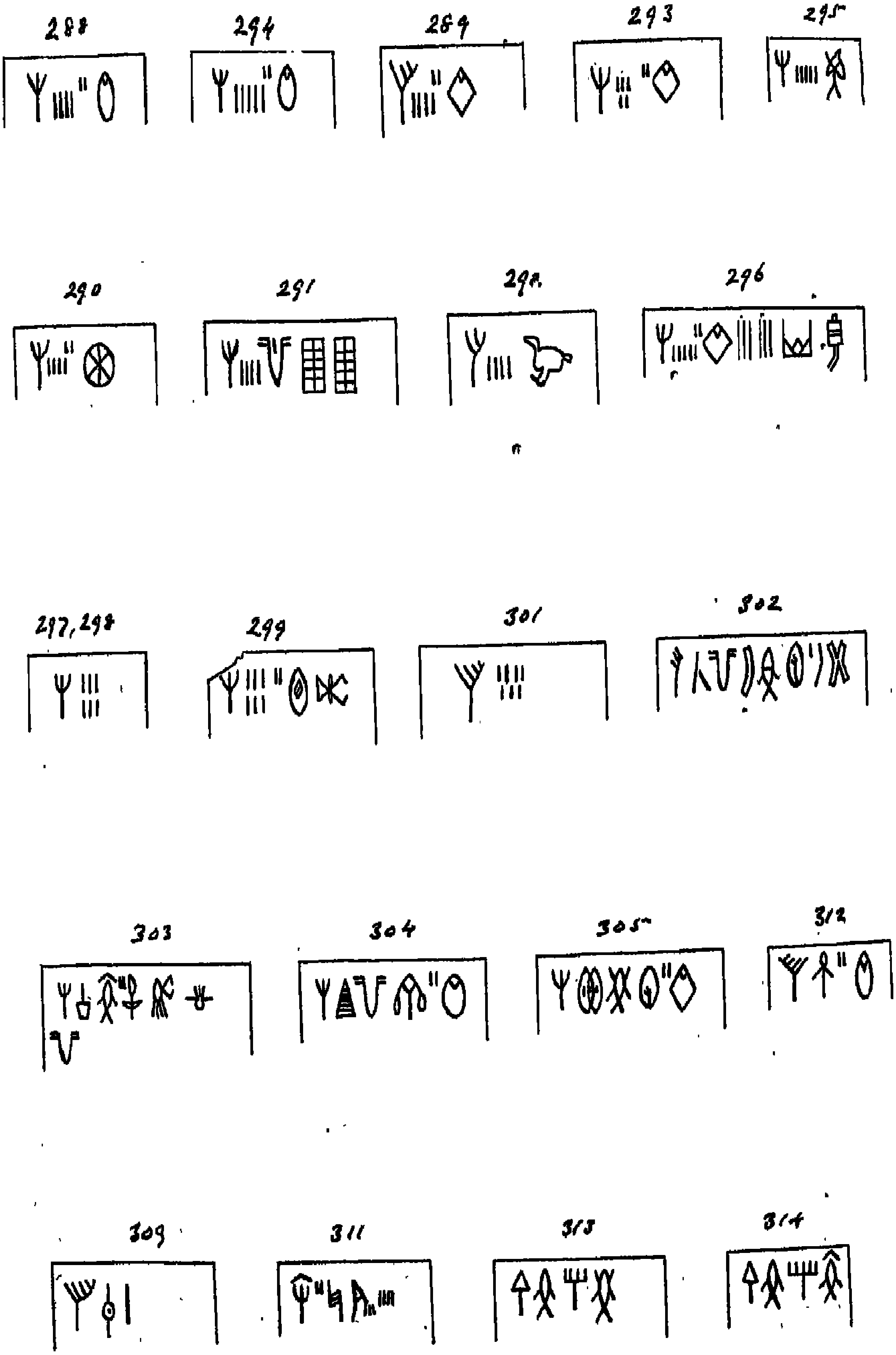
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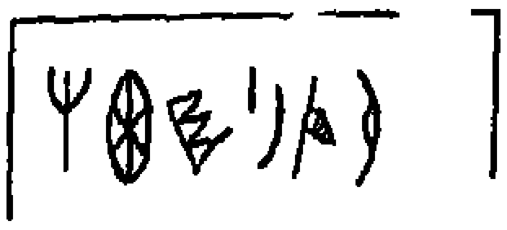
Plate XVI

307



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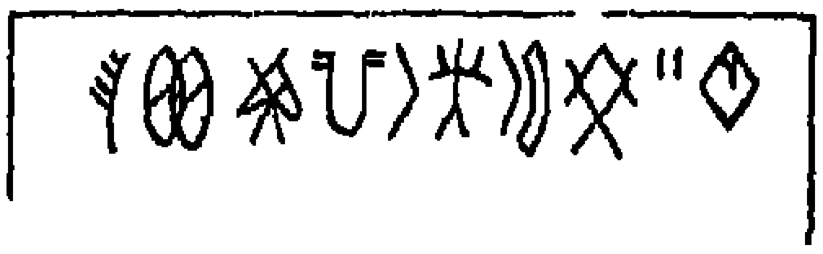

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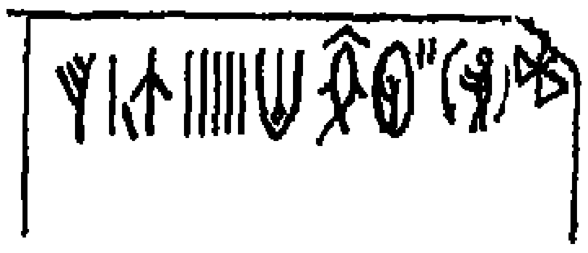

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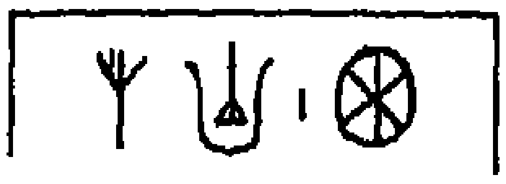

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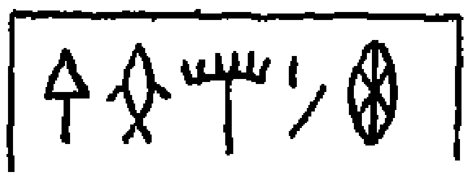

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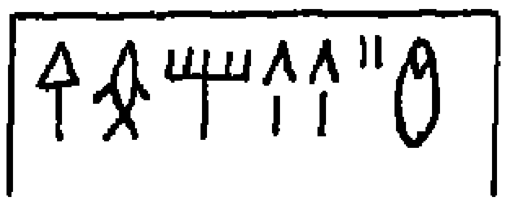

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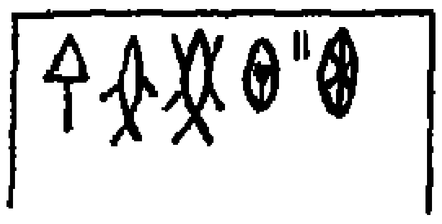

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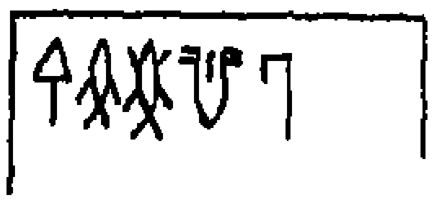

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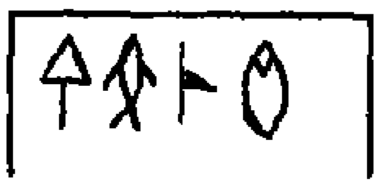

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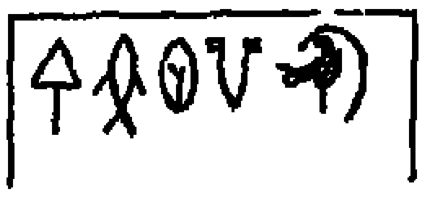

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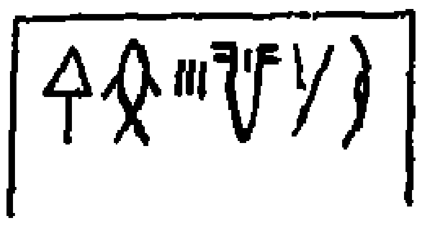

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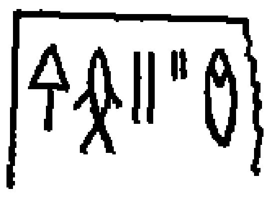

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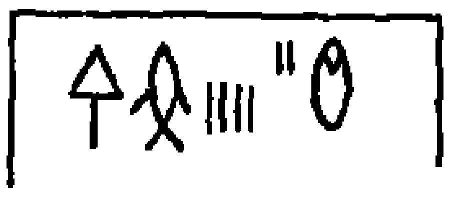

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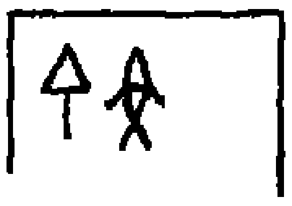

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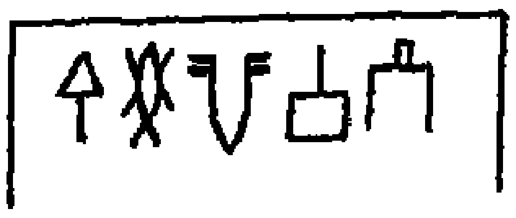

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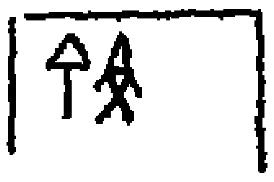

Plate XVII

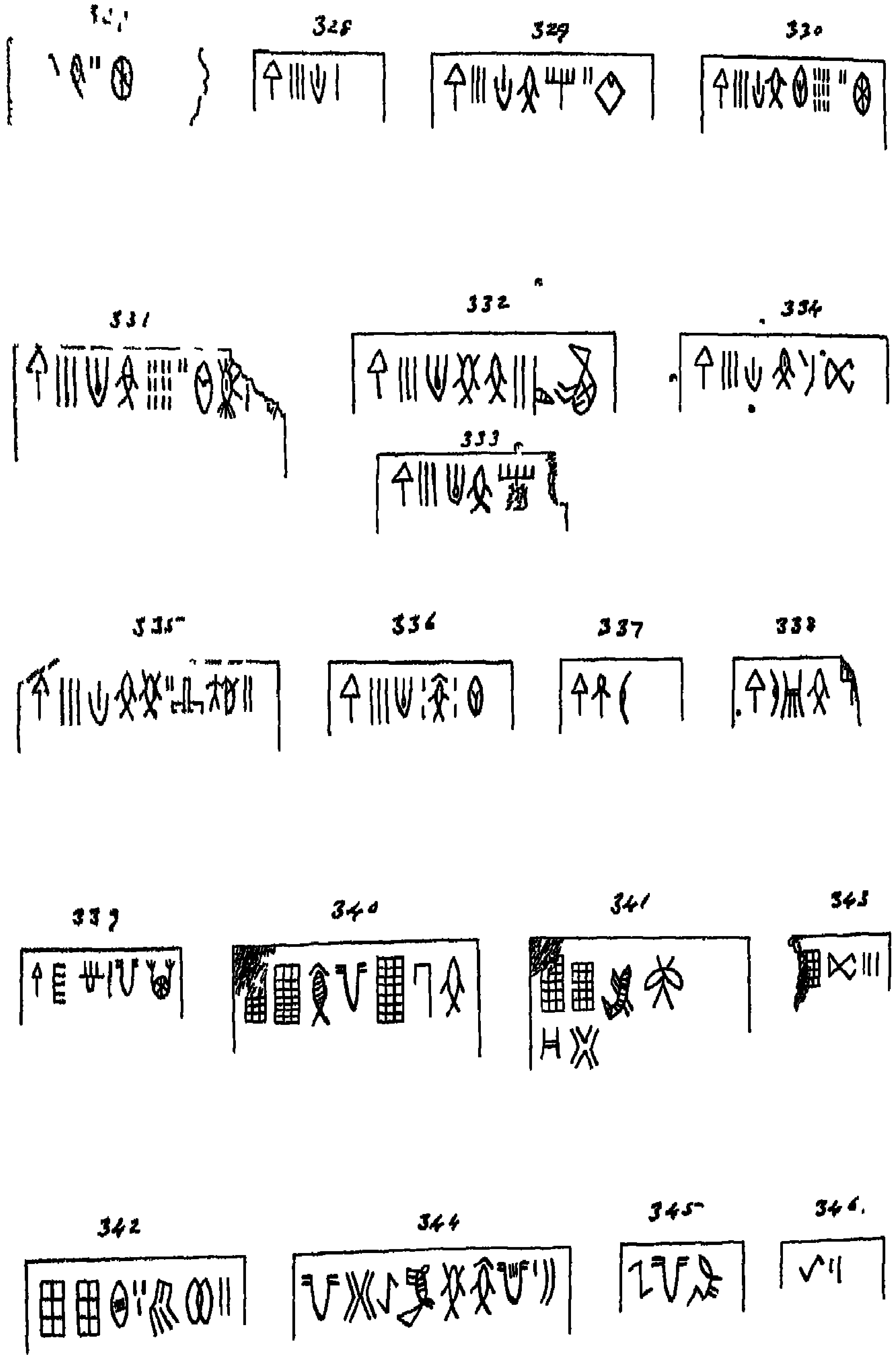
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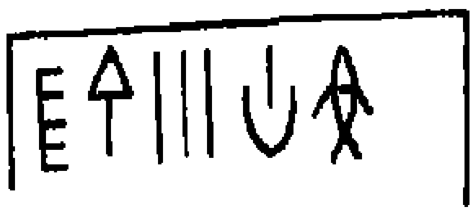
Plate XVIII

347


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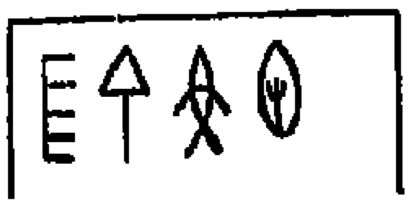

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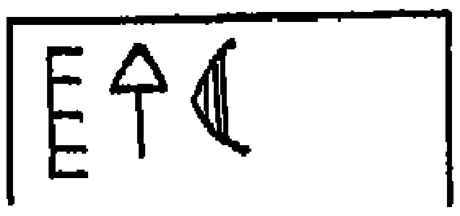

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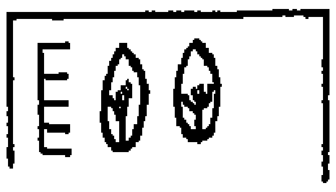

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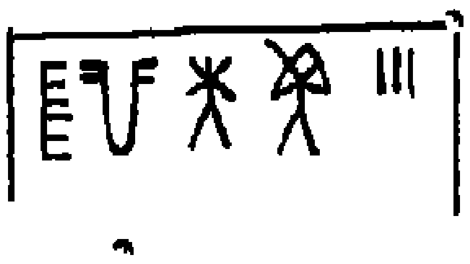

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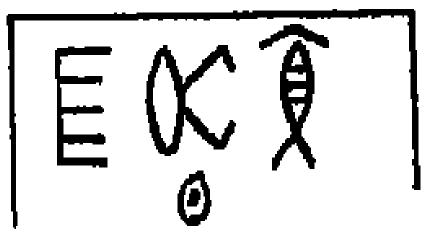

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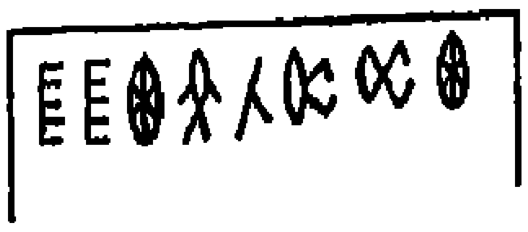

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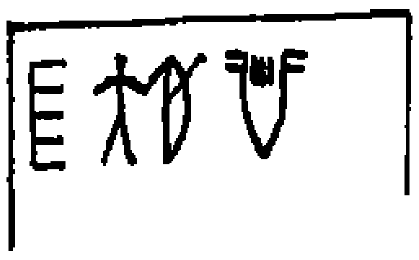

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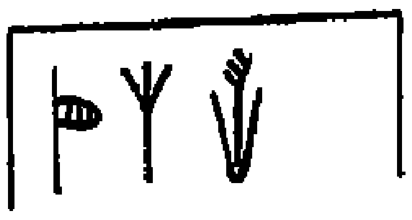

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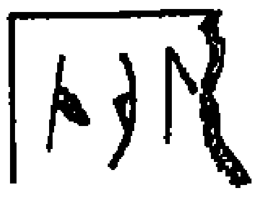

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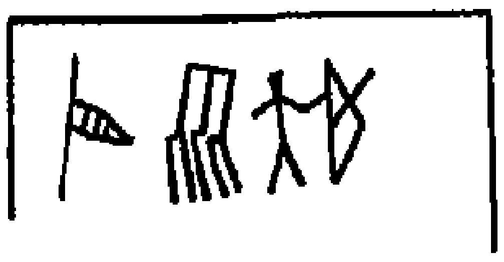

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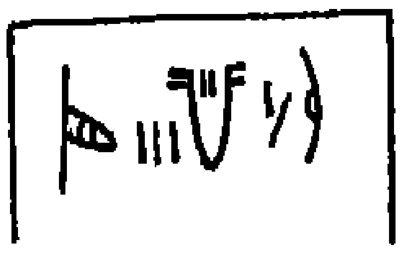

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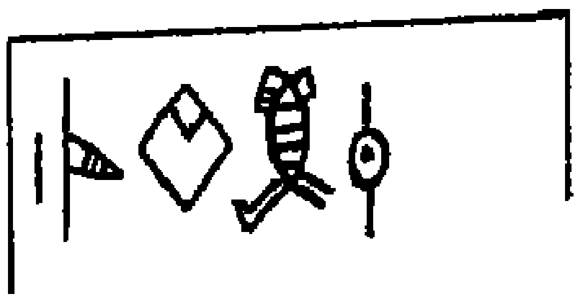

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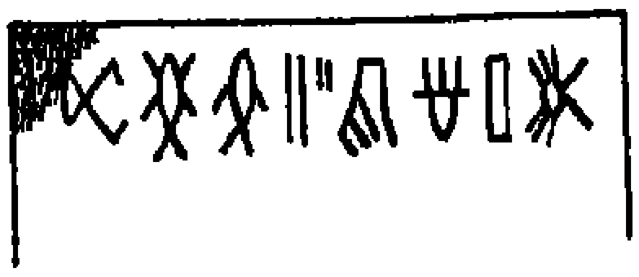

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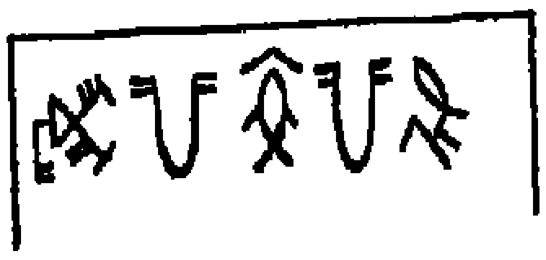

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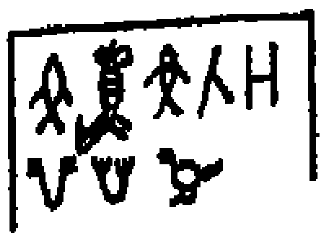

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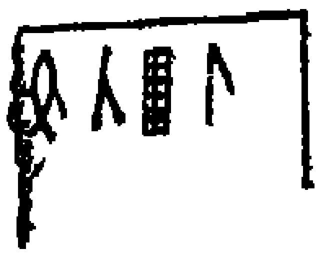
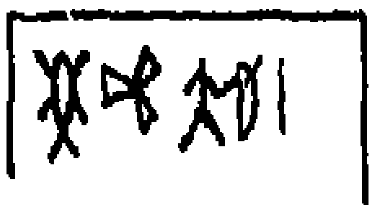


Plate XIX

367



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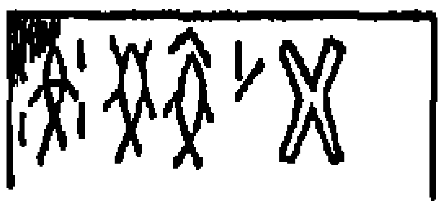

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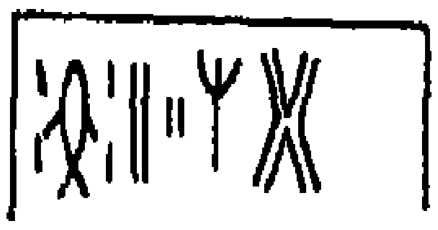

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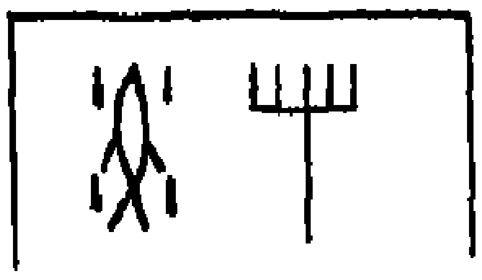

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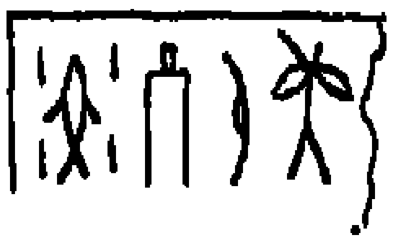

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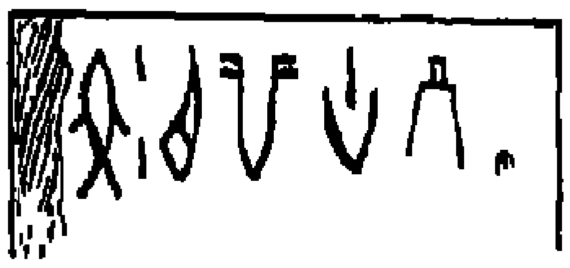

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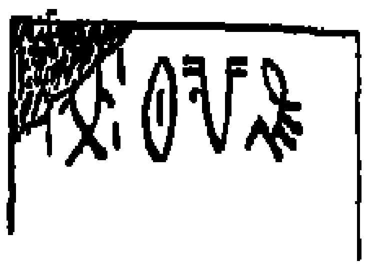

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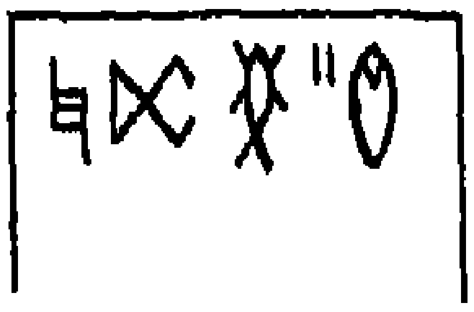

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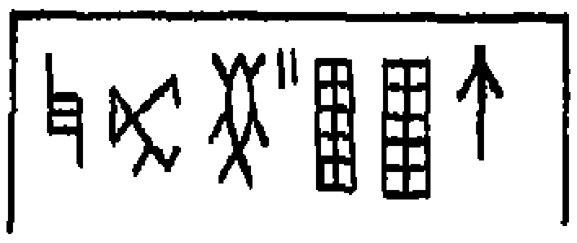

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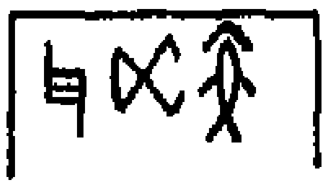

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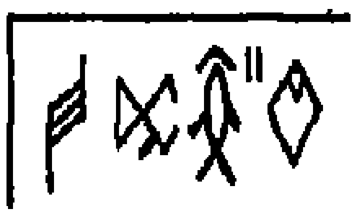

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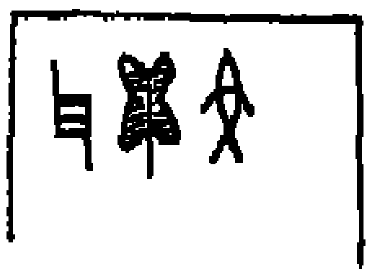

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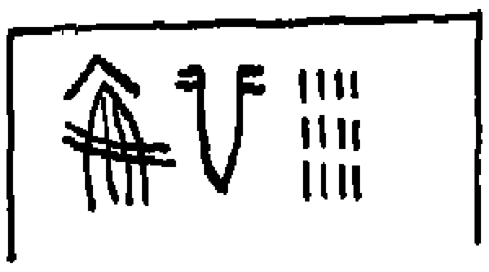

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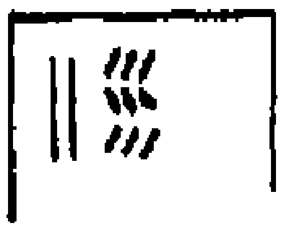

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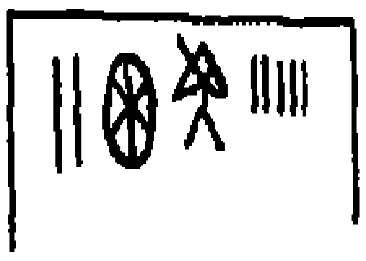

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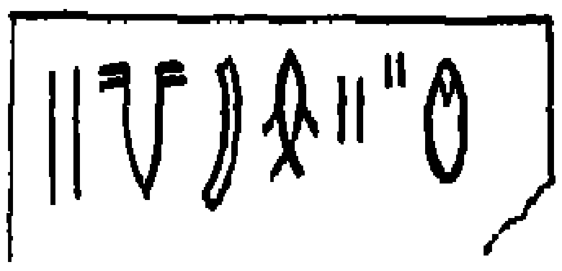

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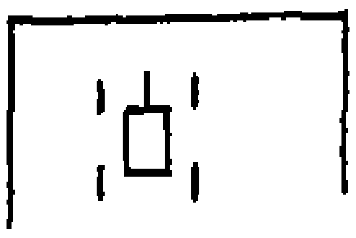

Plate XX

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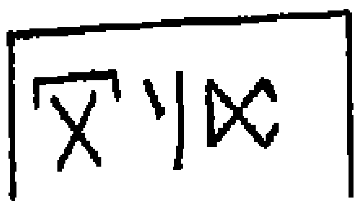

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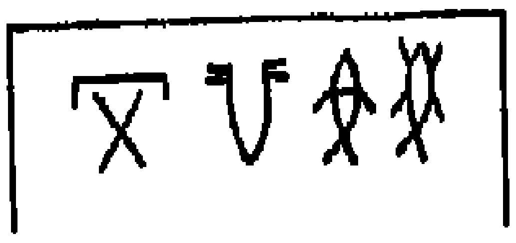

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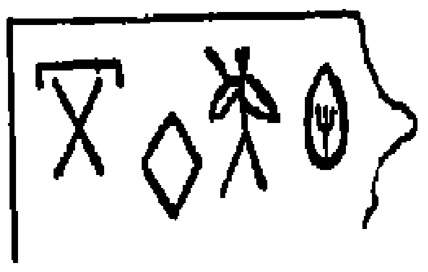

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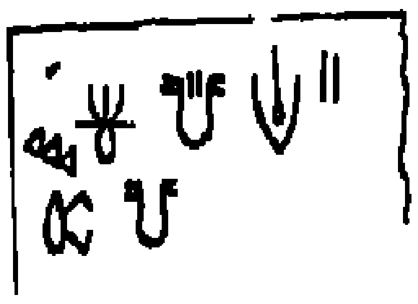

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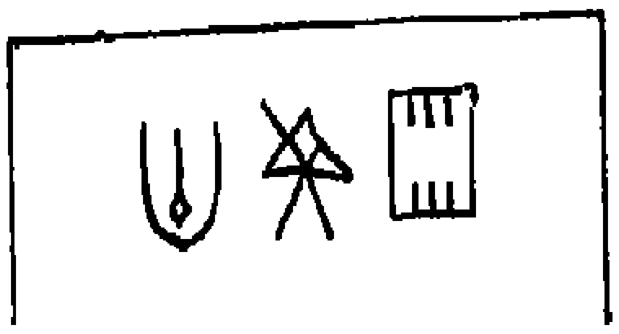

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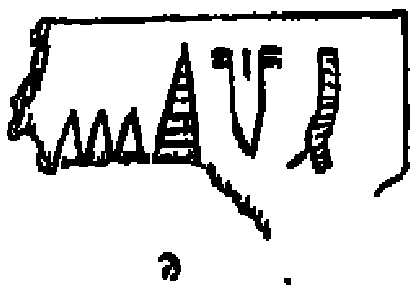

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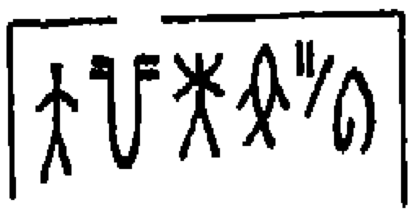

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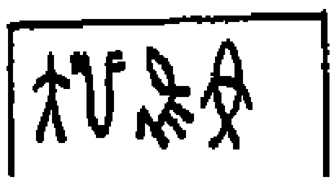

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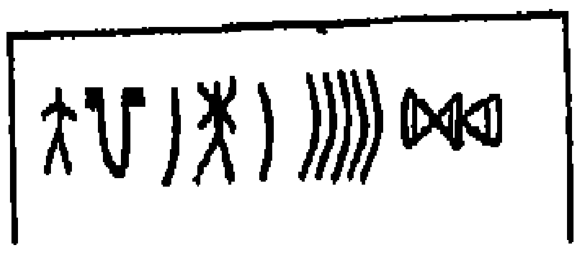

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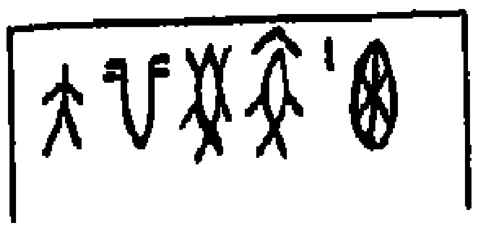

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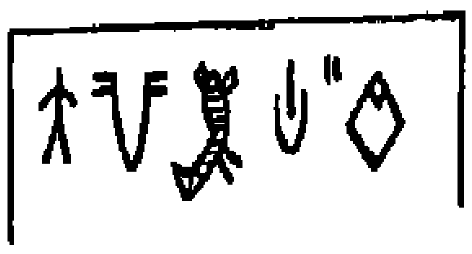

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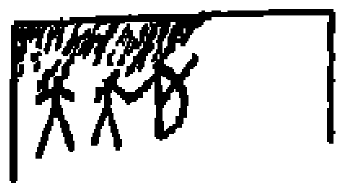

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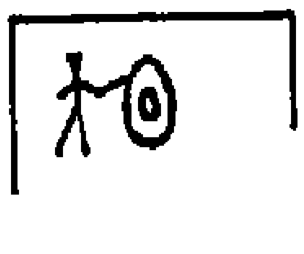

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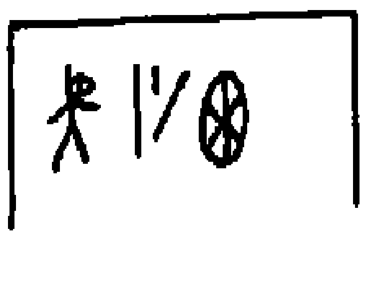

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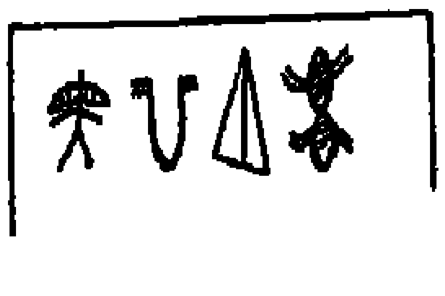

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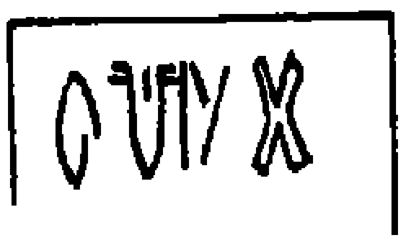

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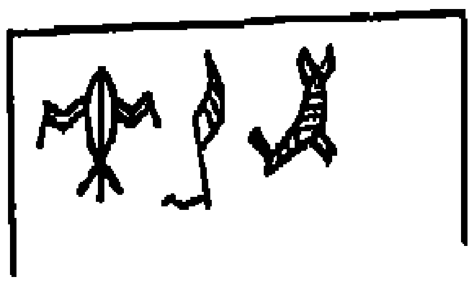

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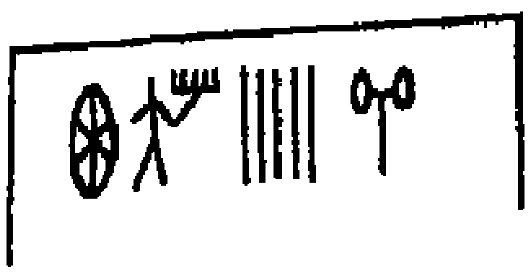

Plate XXI

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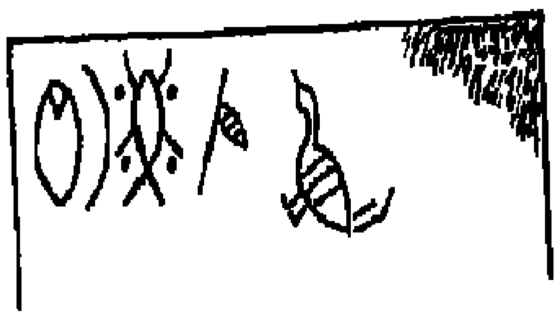

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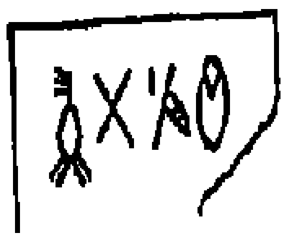

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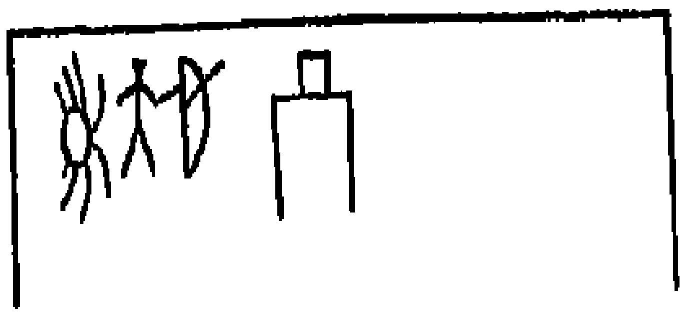

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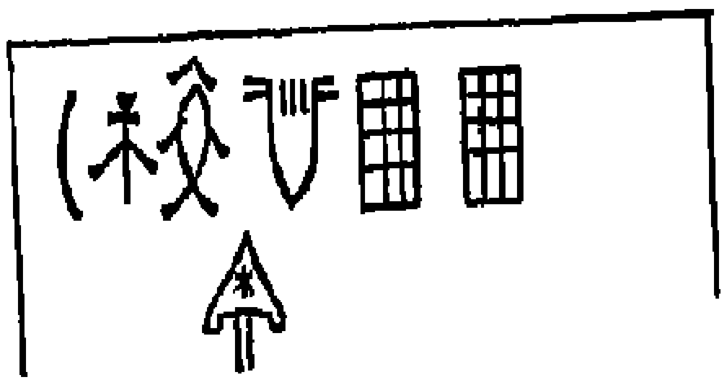

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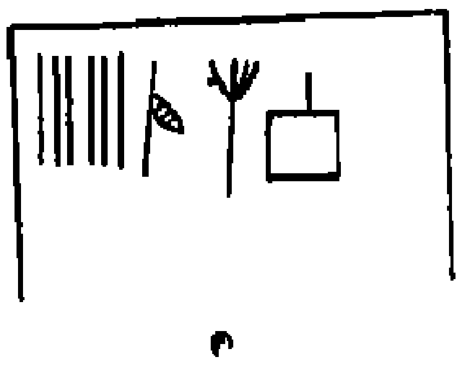

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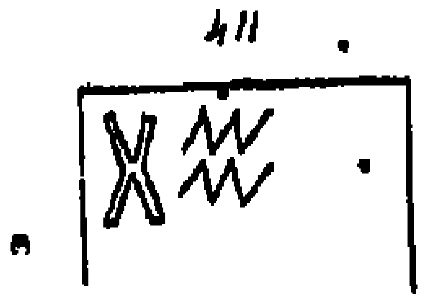

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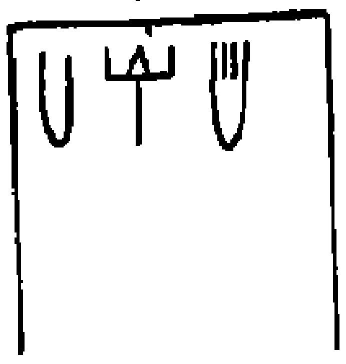

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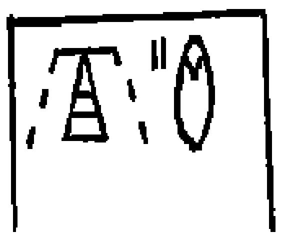

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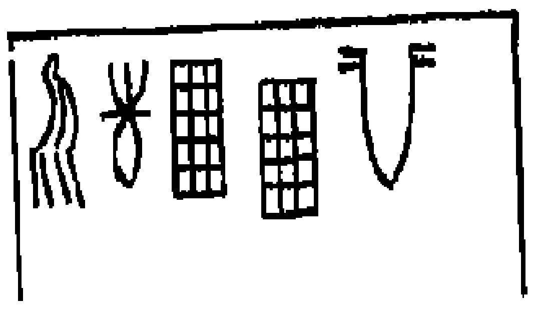

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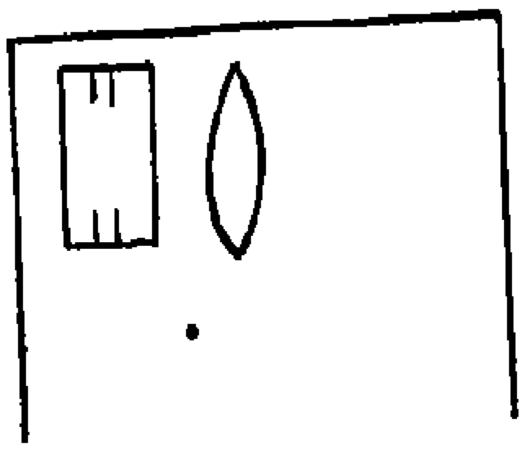

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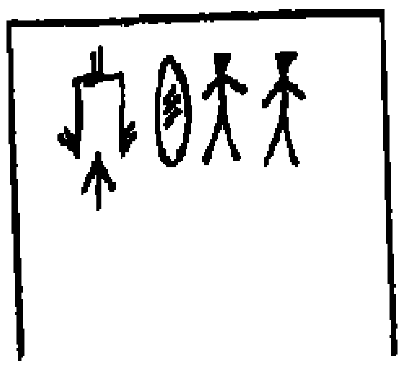

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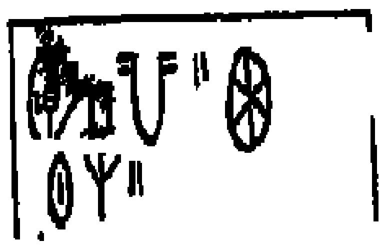

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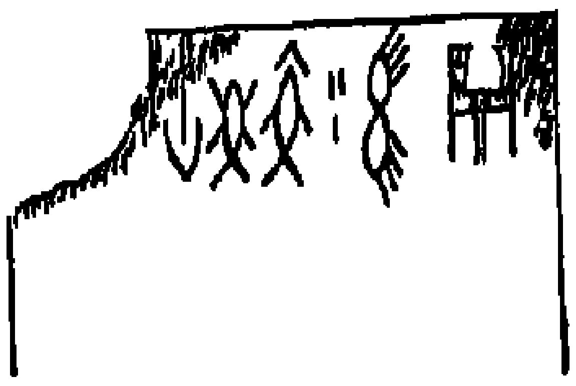

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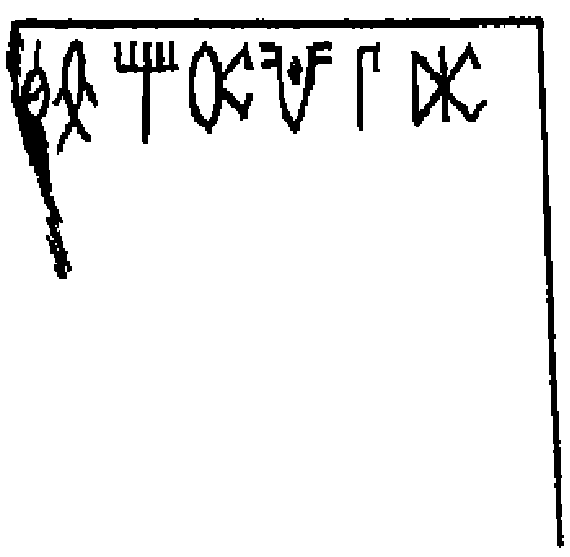

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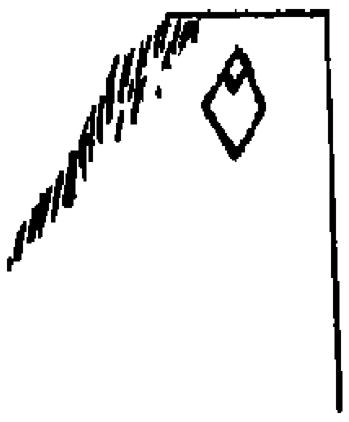

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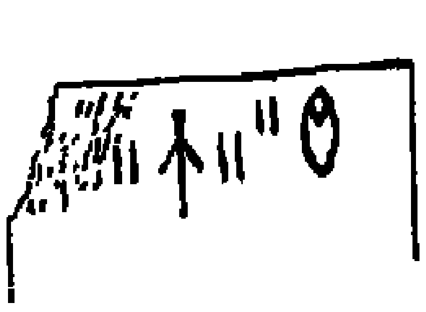

Plate XXII

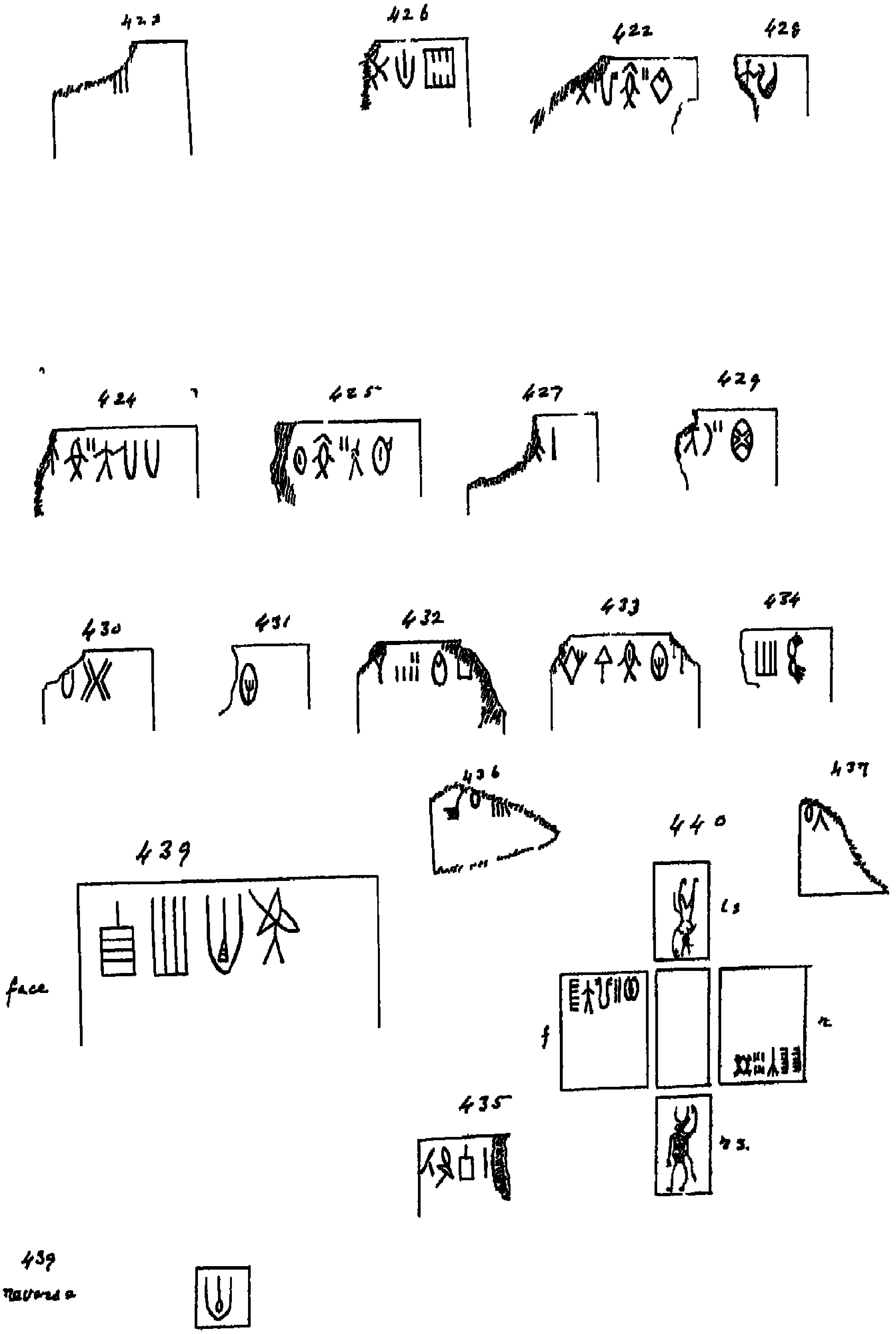
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Plate XXIII

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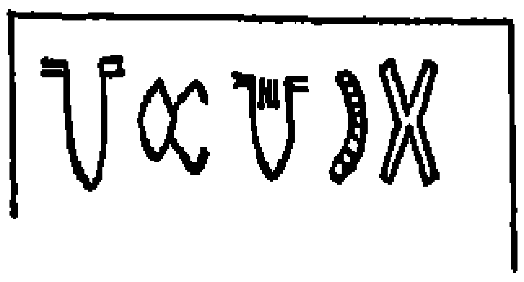

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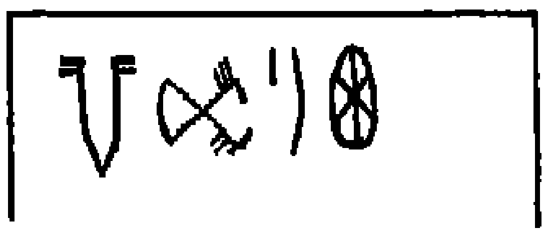

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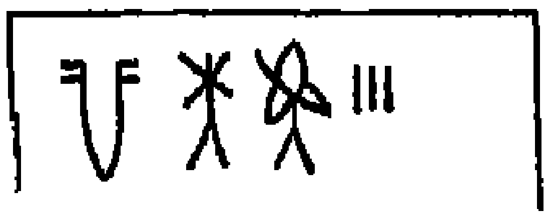

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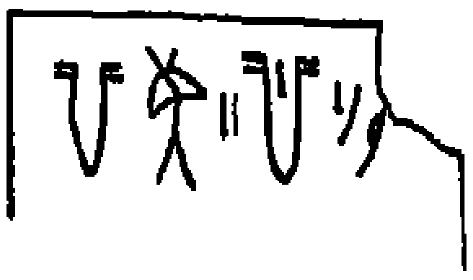

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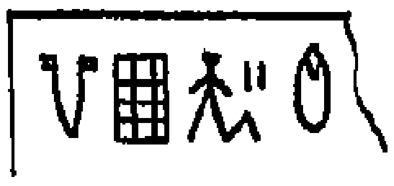

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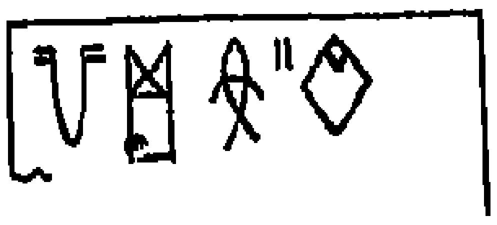

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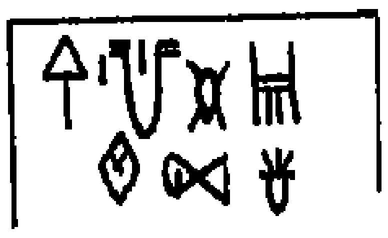

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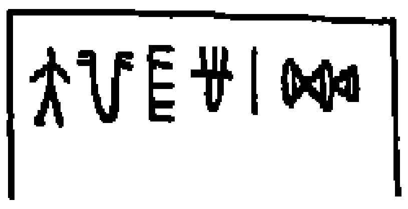

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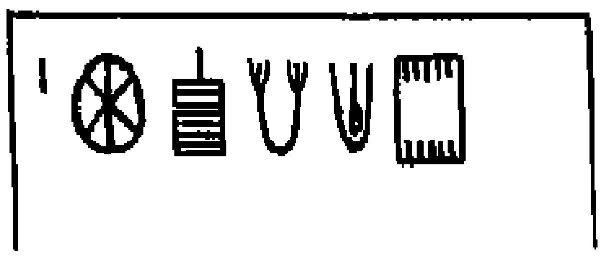

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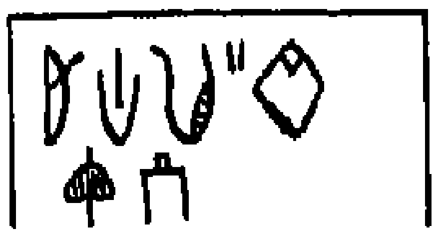

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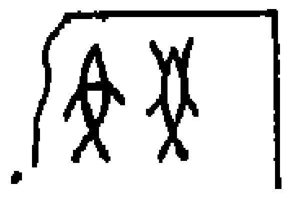

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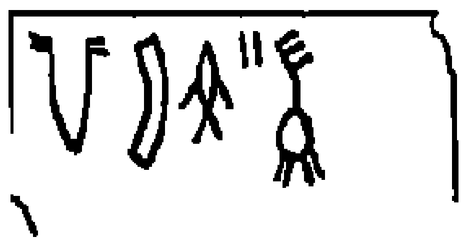

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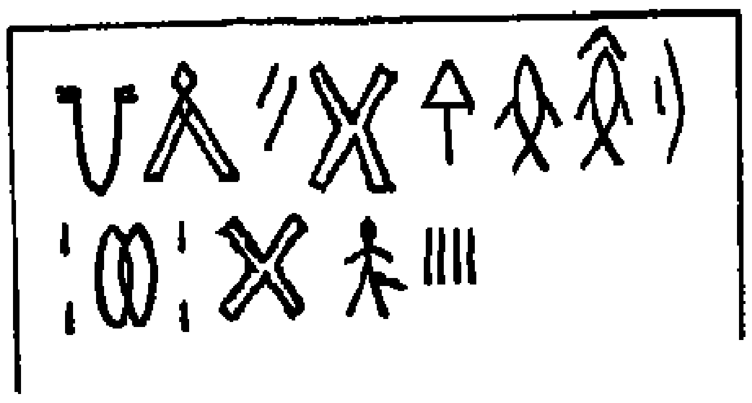

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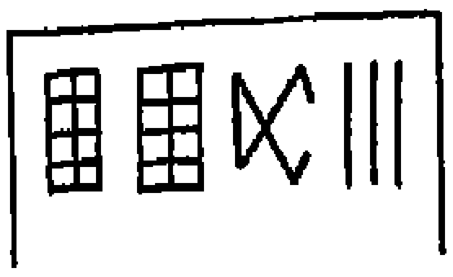
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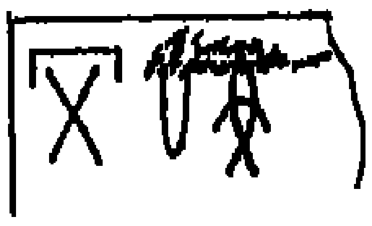
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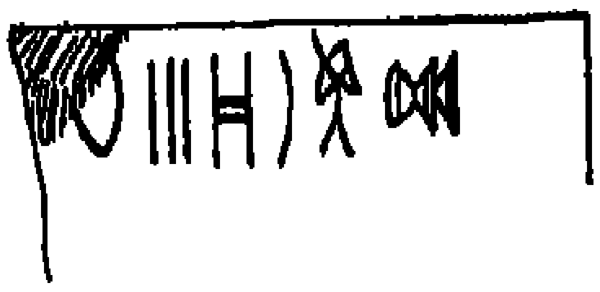
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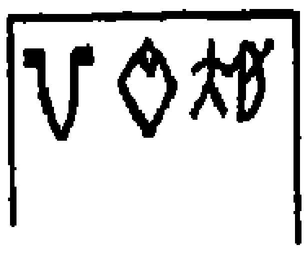

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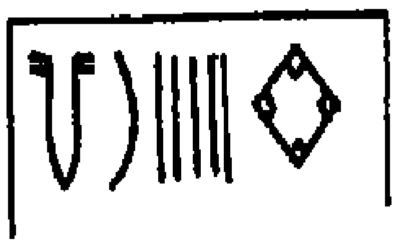
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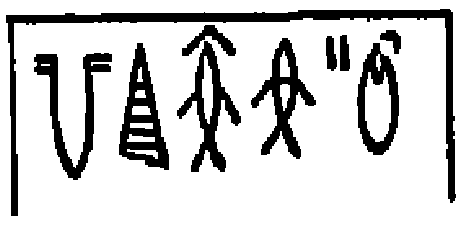
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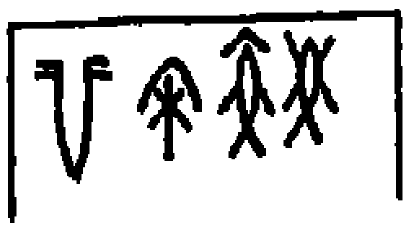
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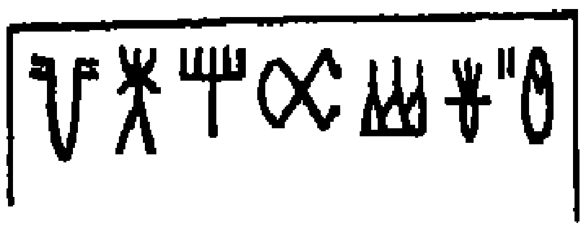

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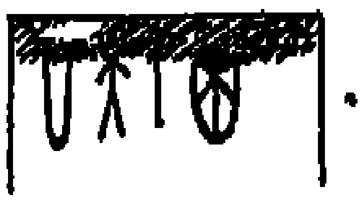
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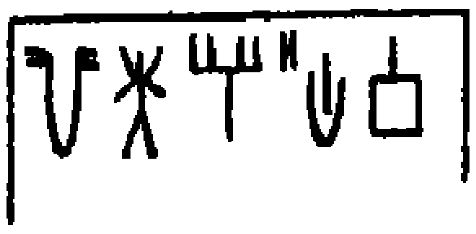
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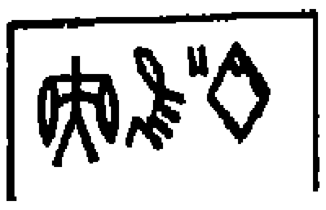
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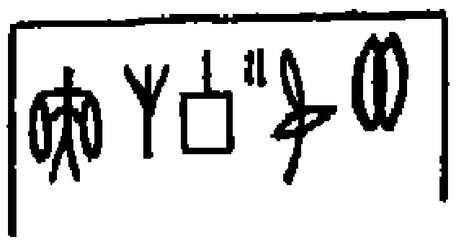

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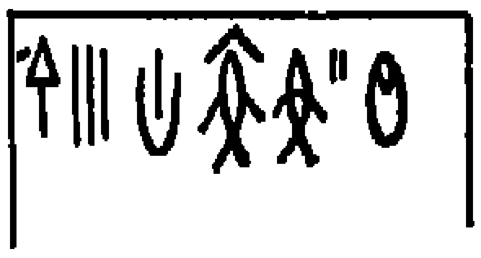
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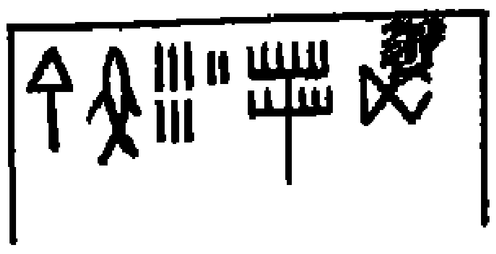
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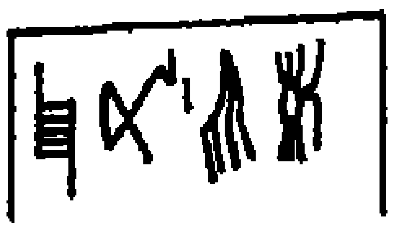

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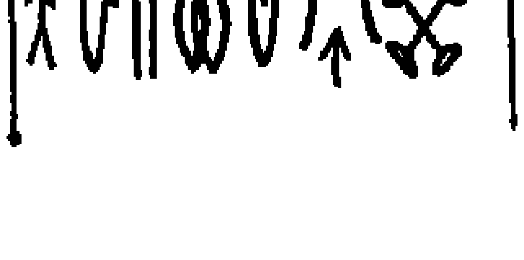
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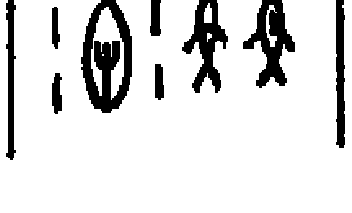

Plate XXV

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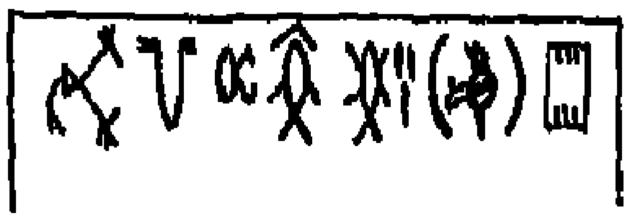

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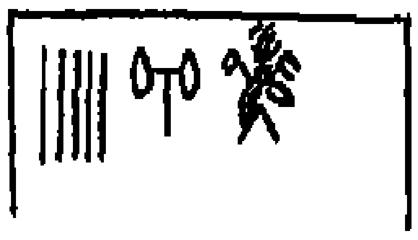

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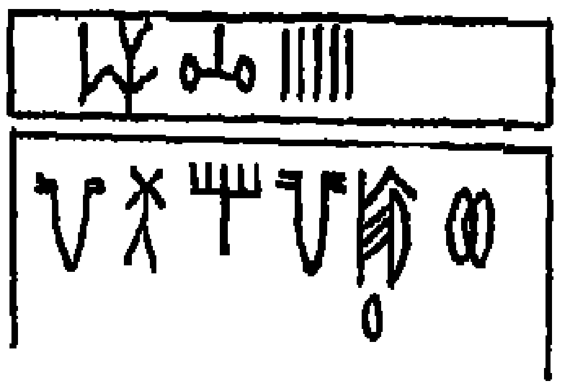

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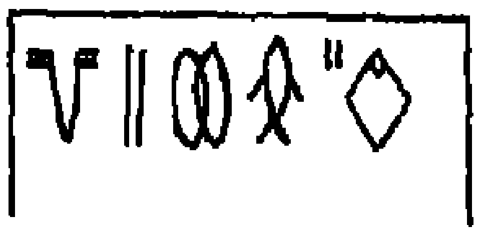

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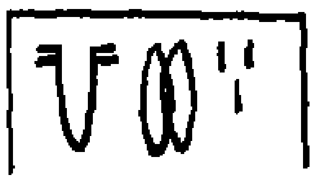

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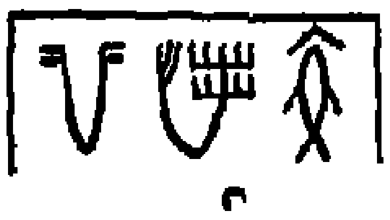

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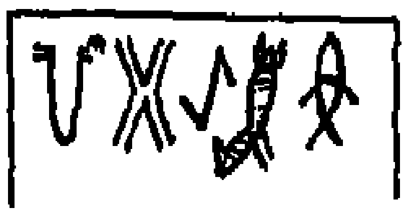

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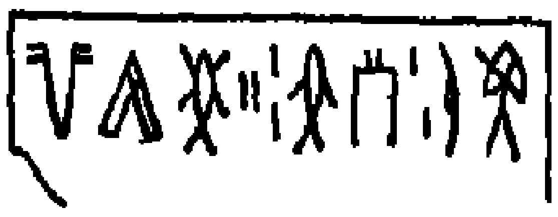

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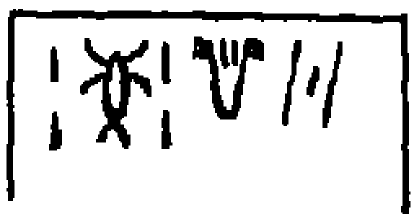

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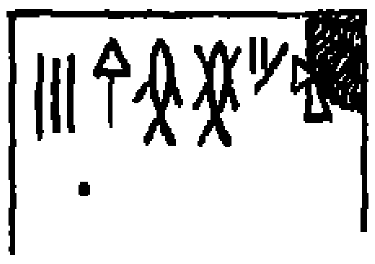

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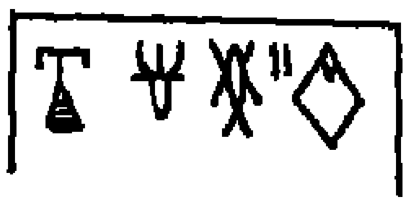

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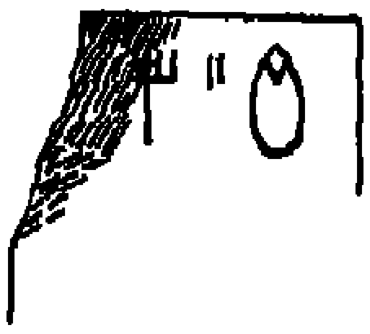

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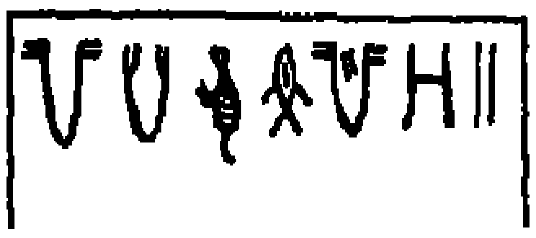

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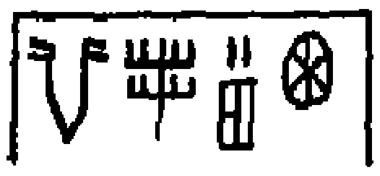

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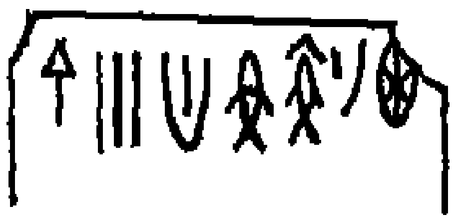

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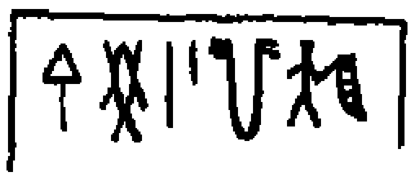

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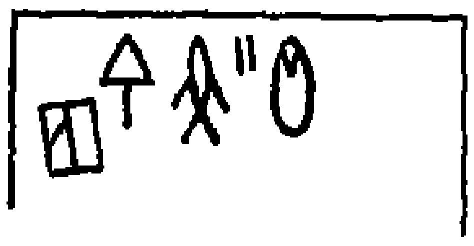

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Plate XXVI

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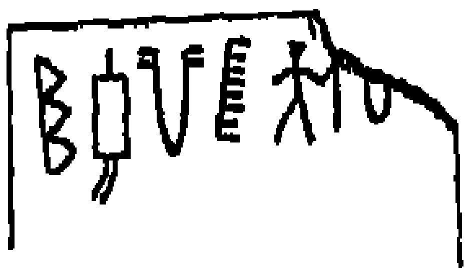
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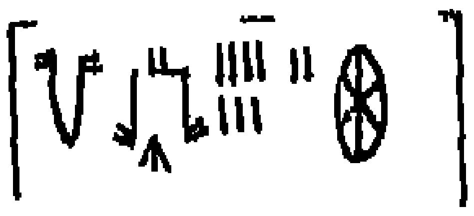
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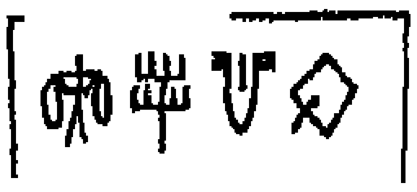
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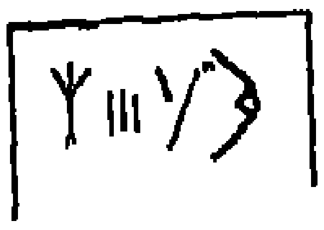
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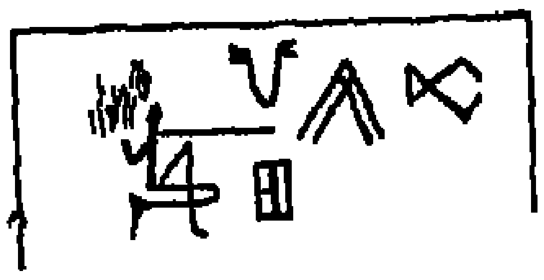
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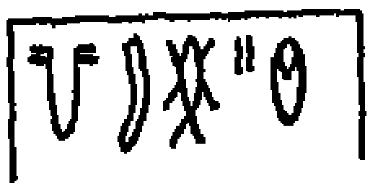
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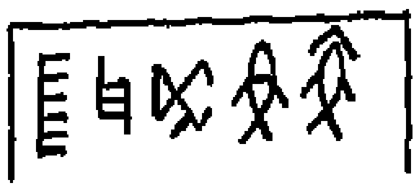

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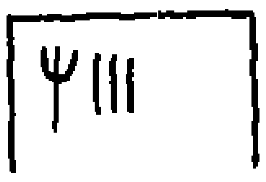
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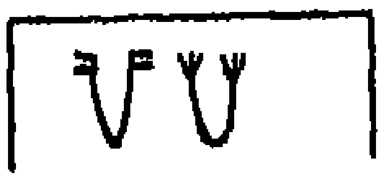
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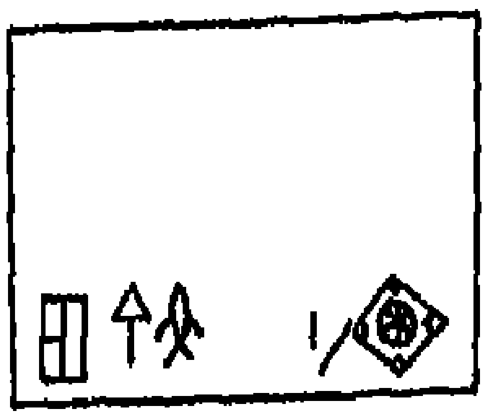
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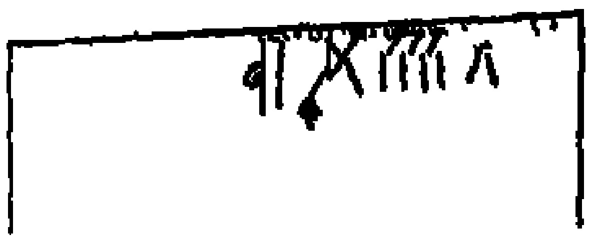

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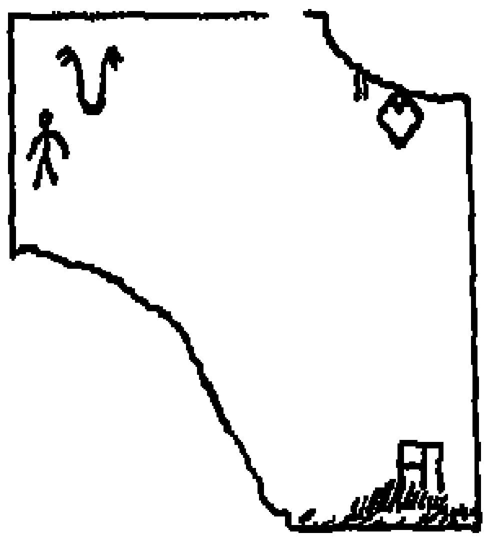
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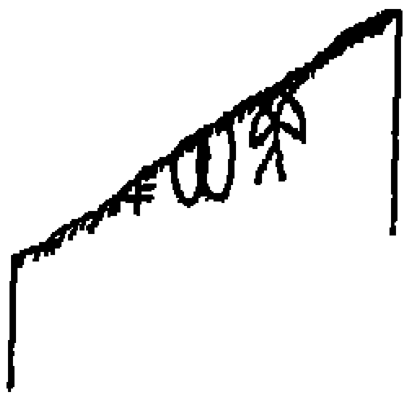

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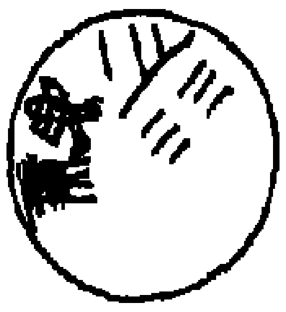
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Plate XXVII

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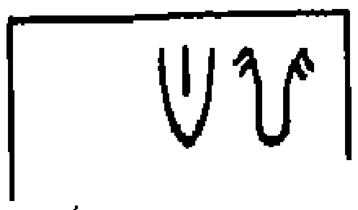

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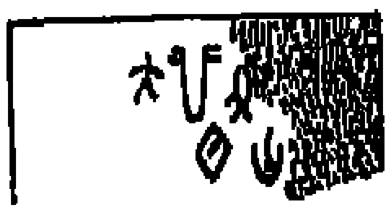

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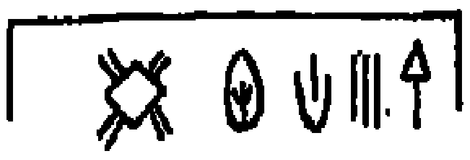

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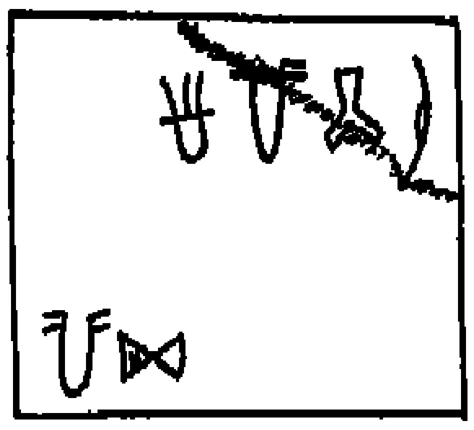

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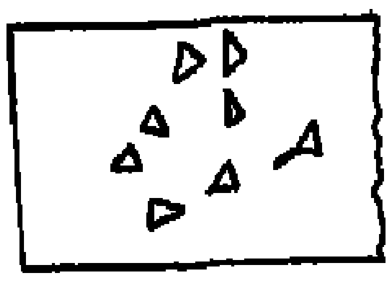
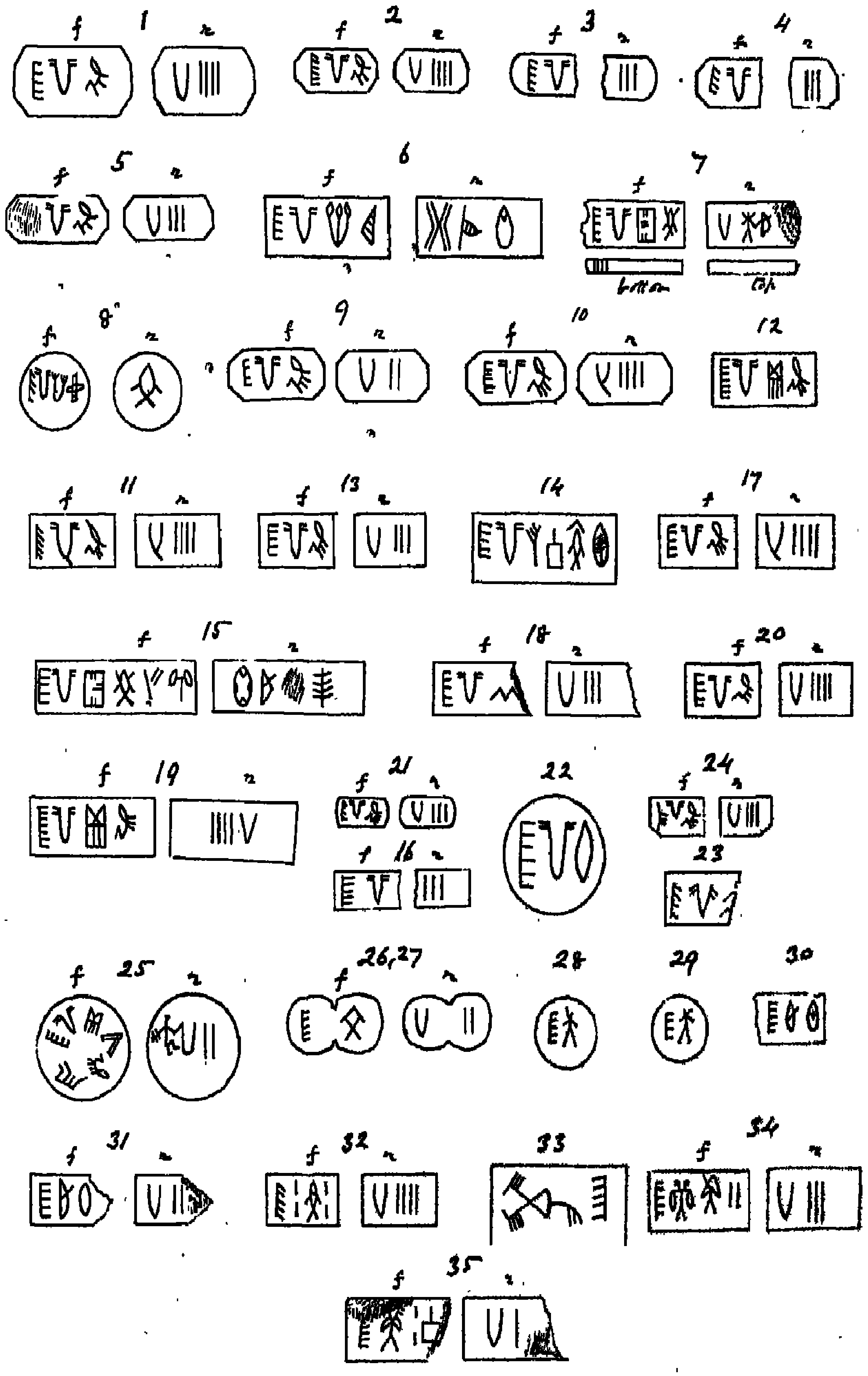


Plate XXVIII



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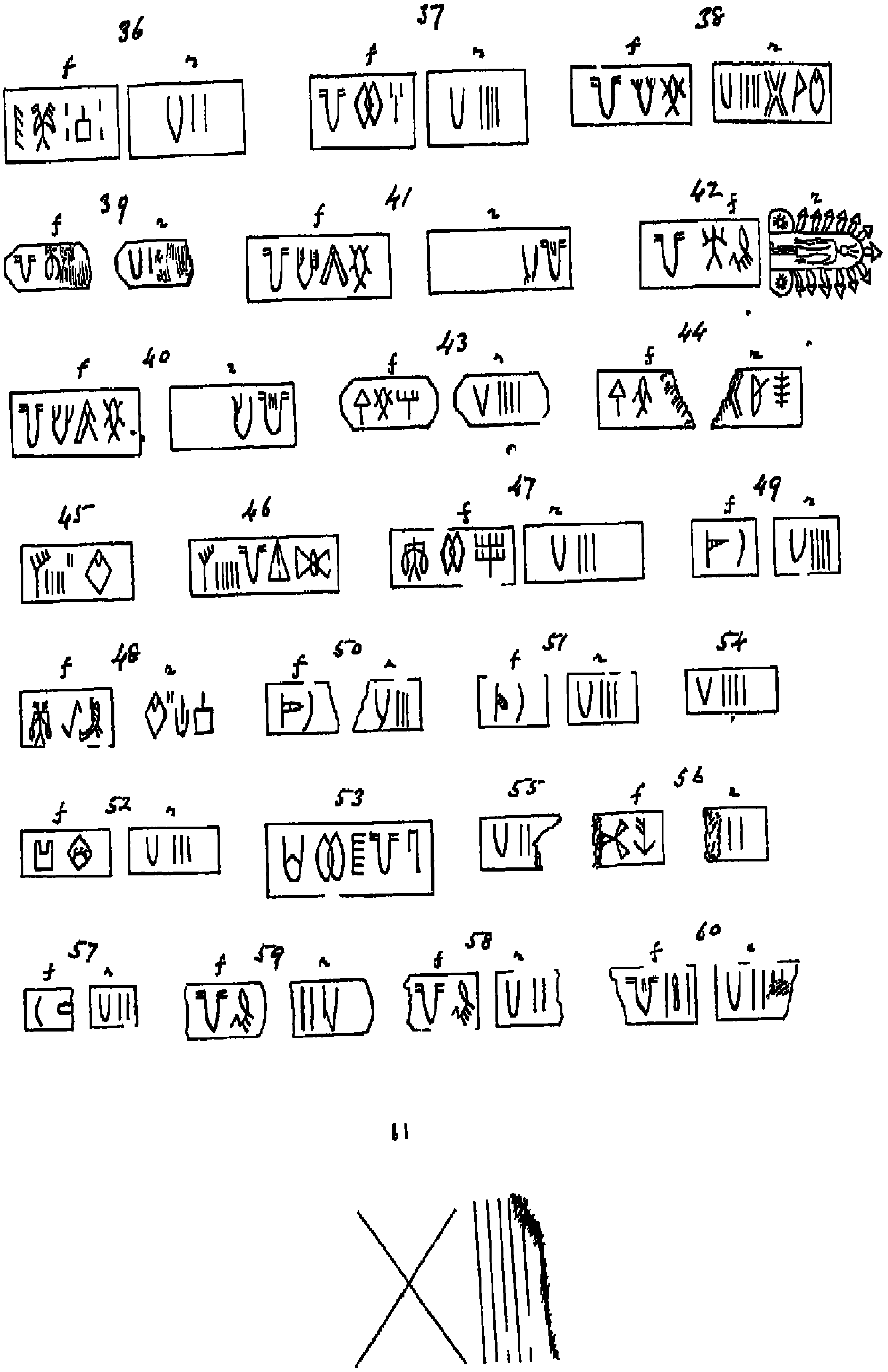
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Plate XXX

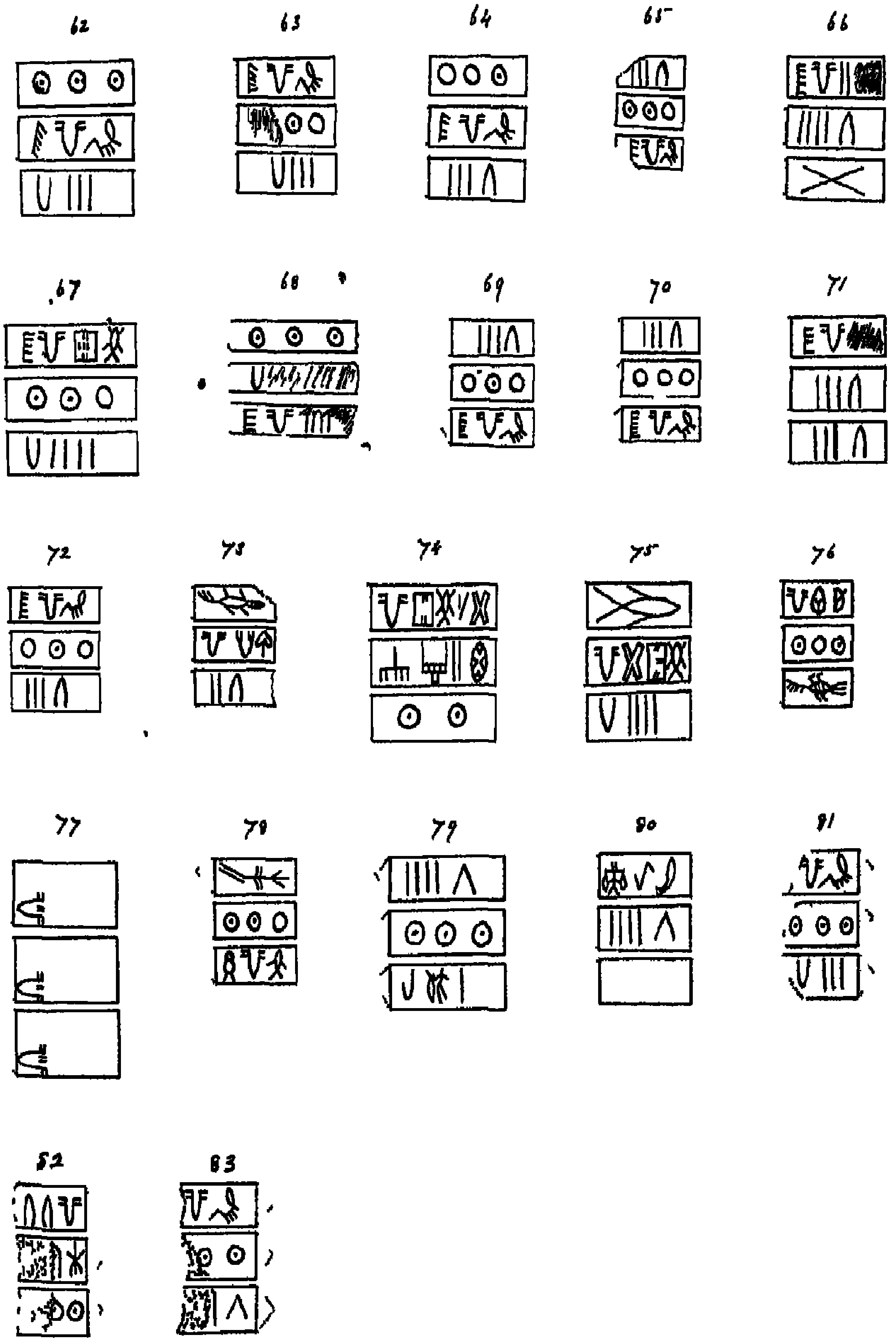

Plate XXXI

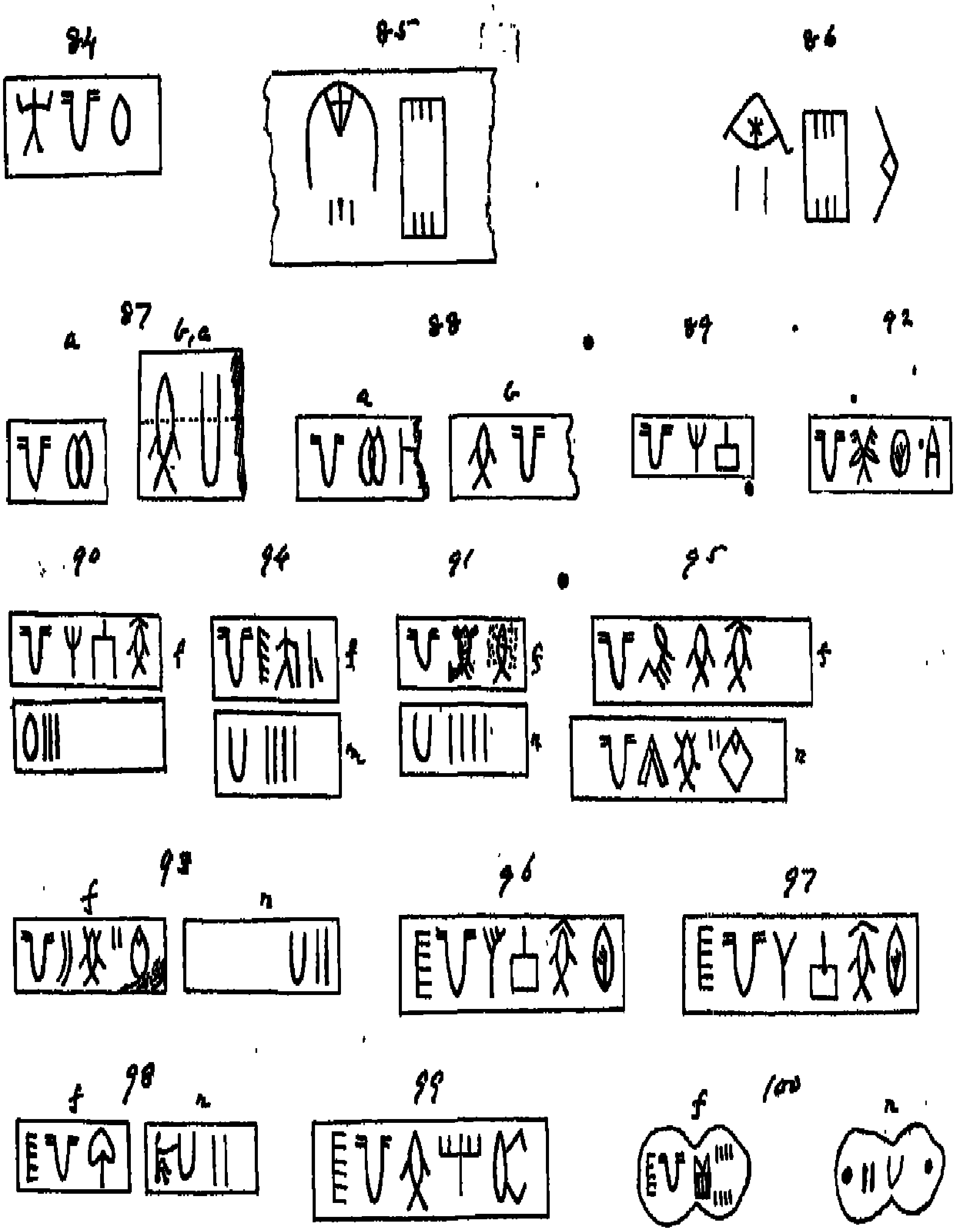

Plate XXXII

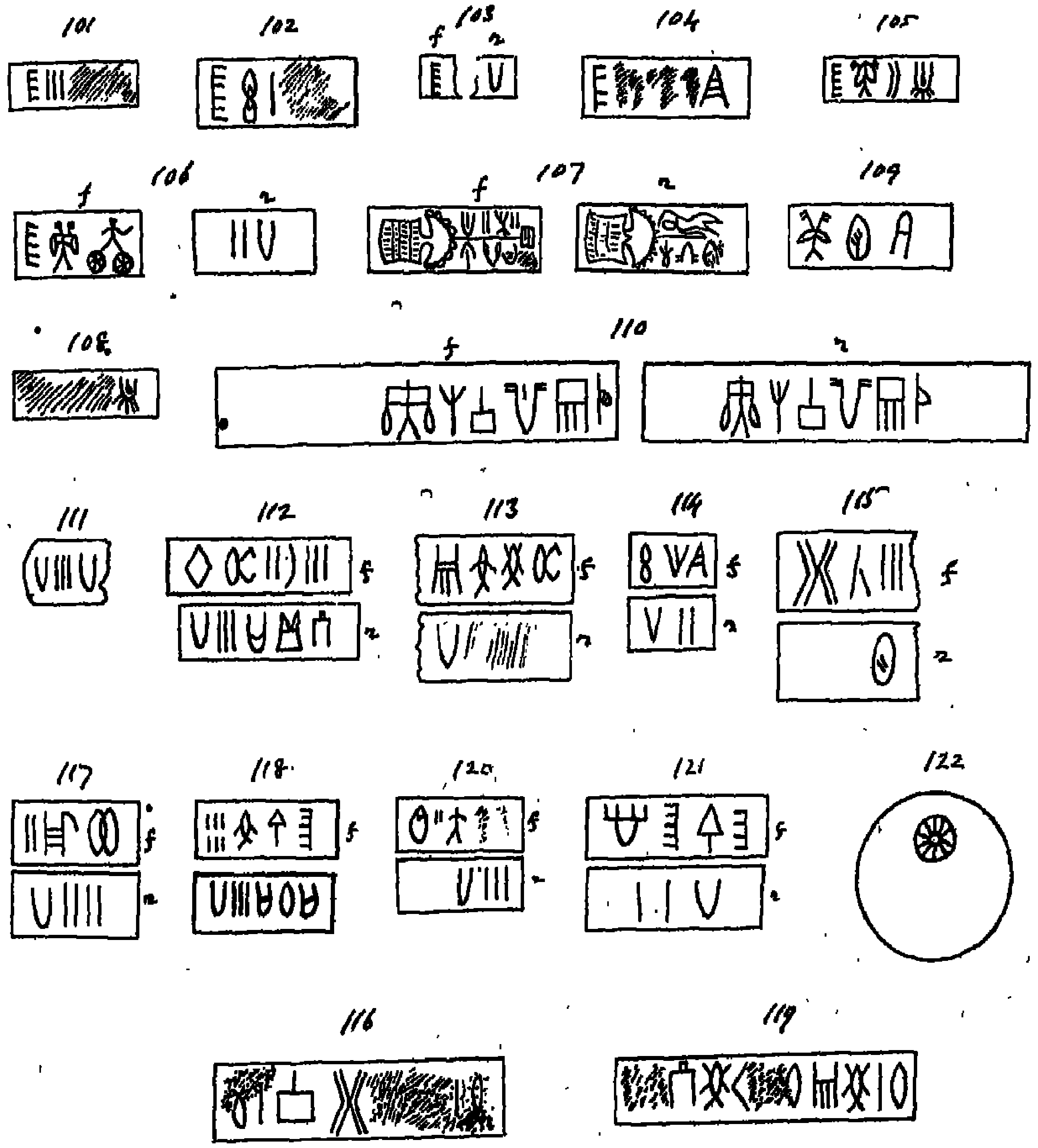
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Plate XXXIII

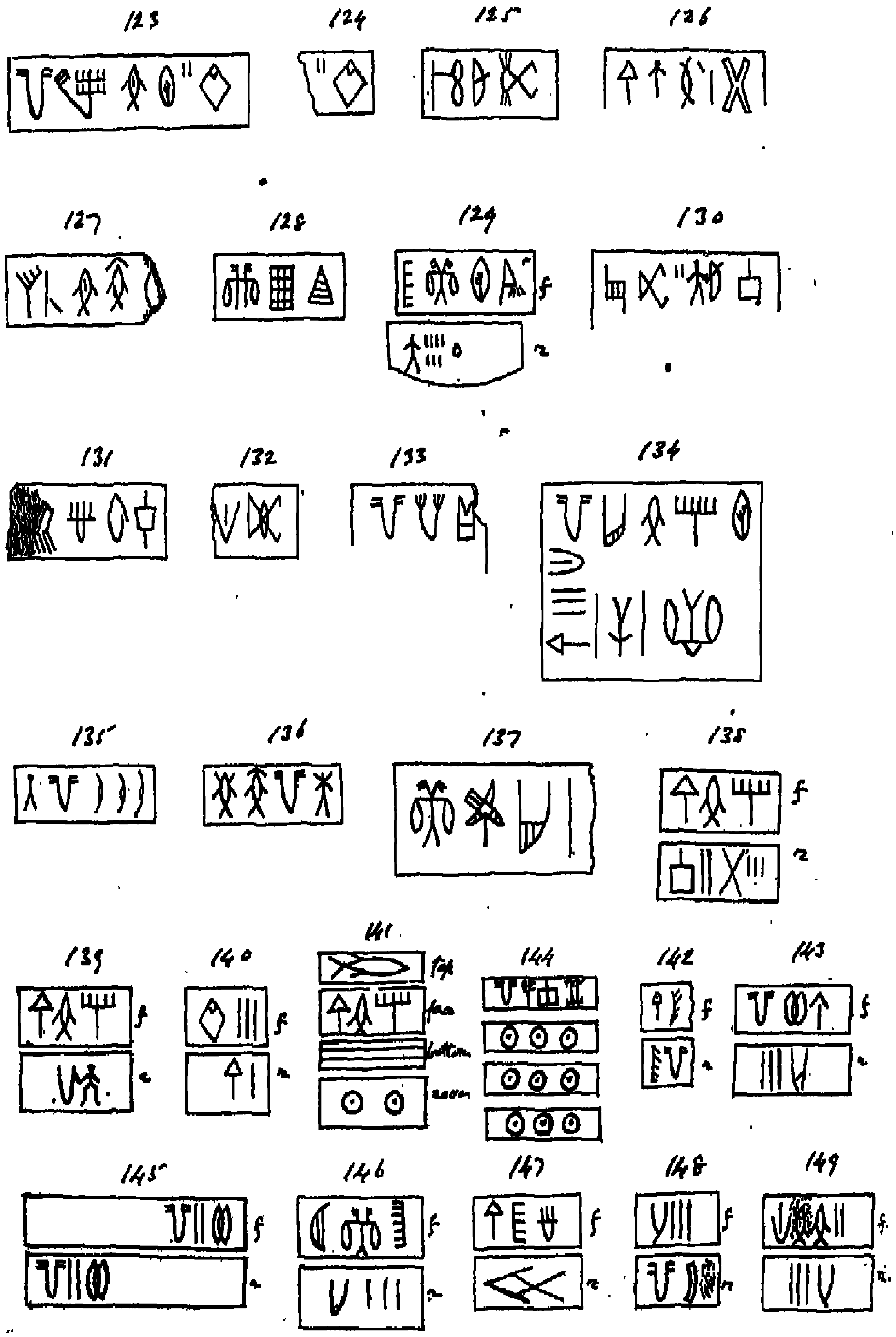


Plate XXXIIII

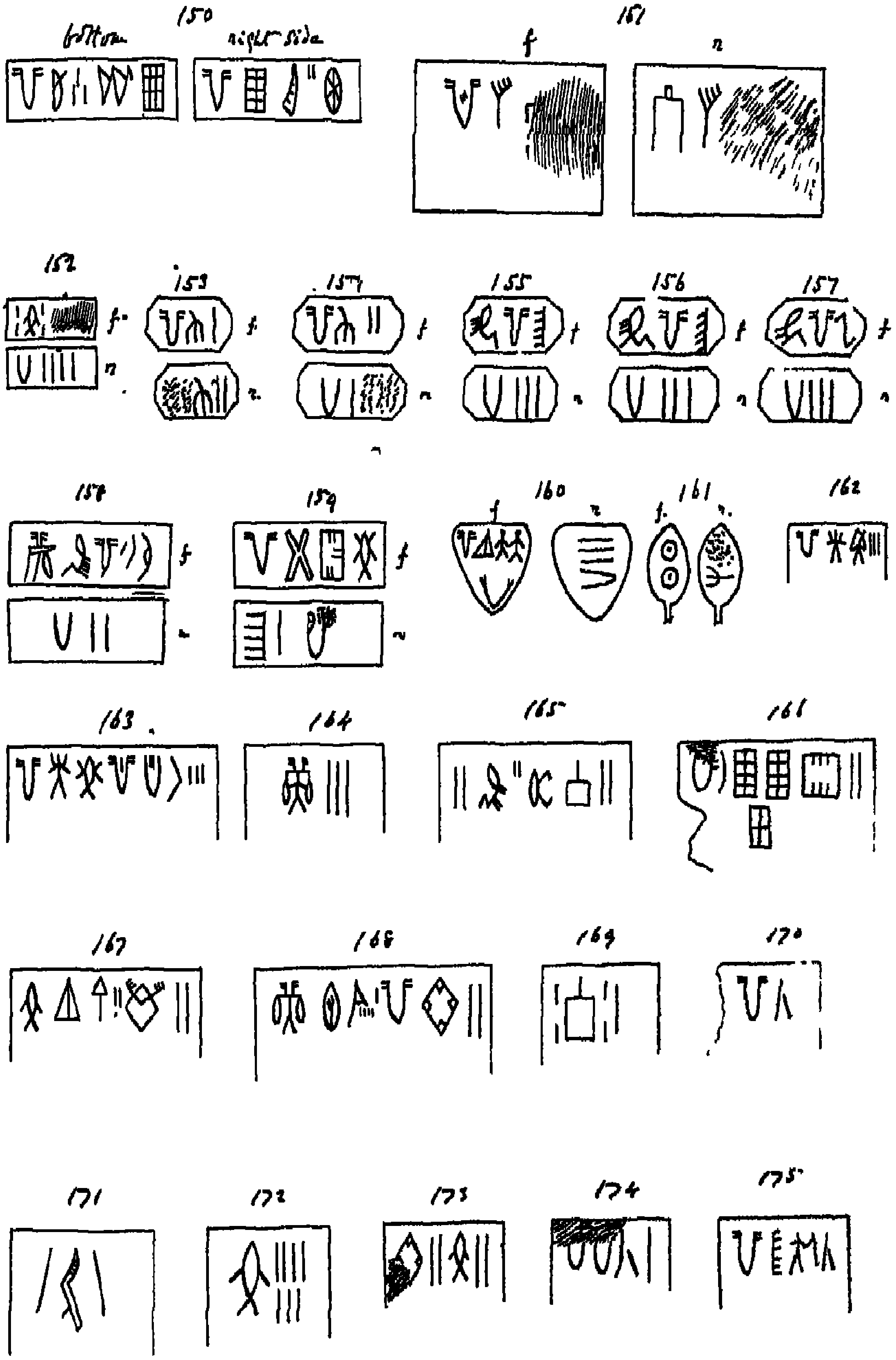
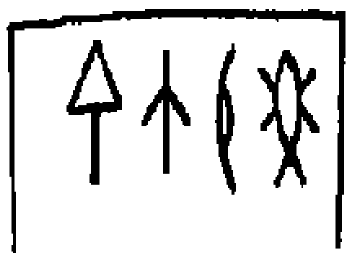


Plate XXXV

176



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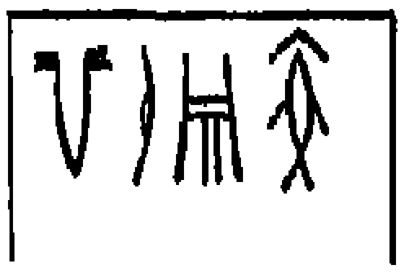

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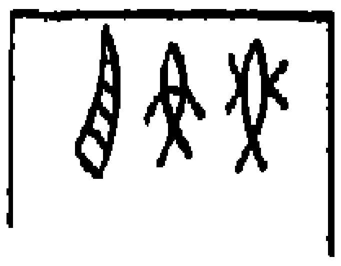

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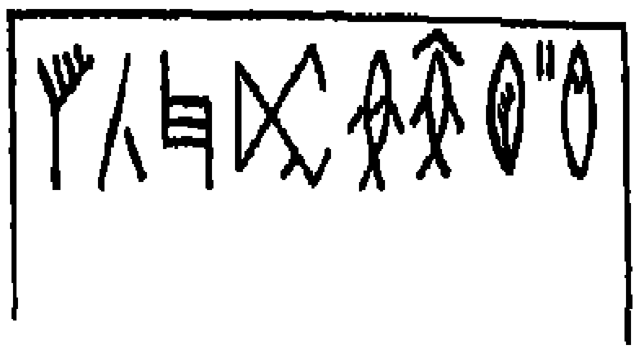

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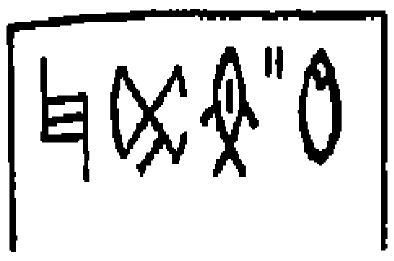

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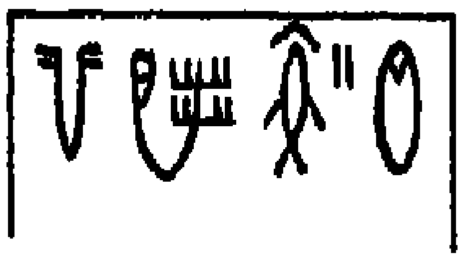

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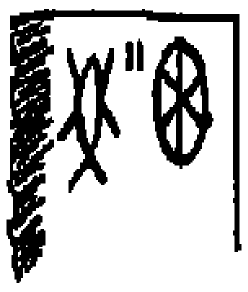

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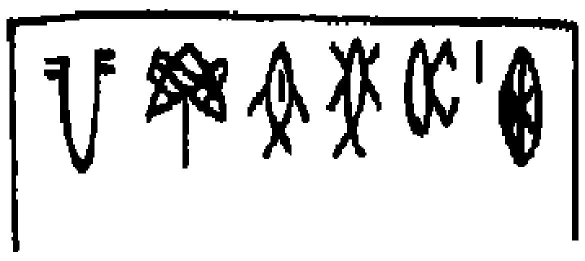

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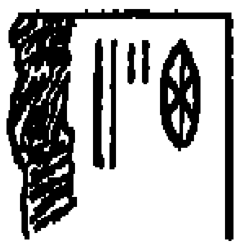

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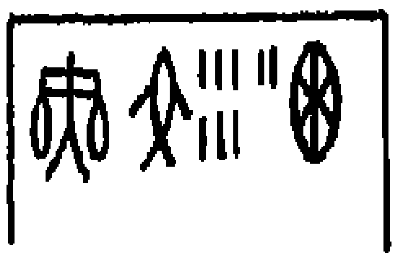

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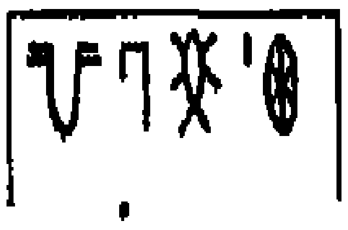

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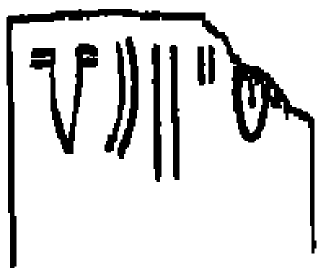

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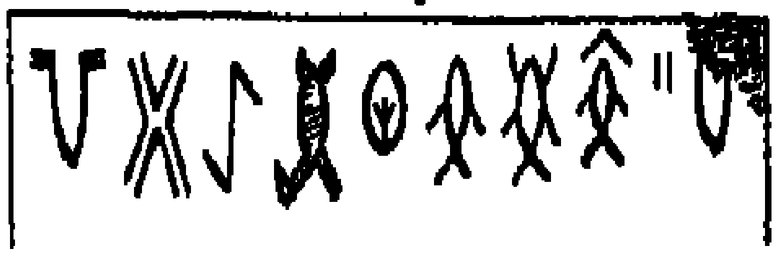

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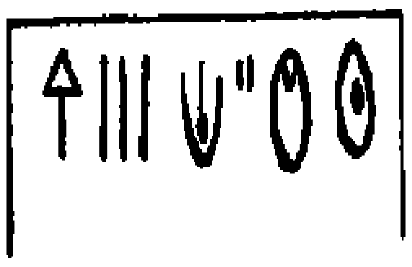

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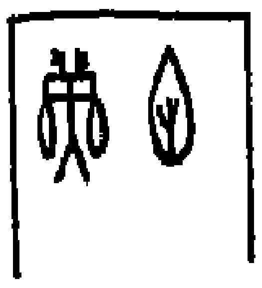

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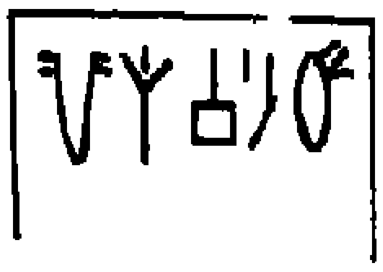

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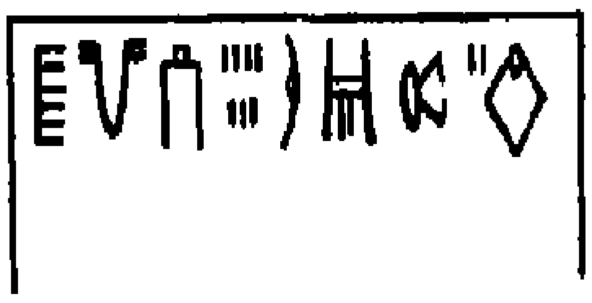

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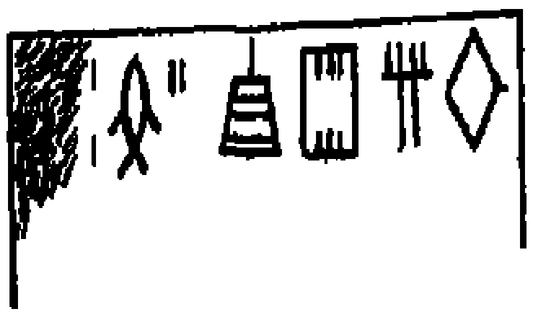

Plate XXXVI

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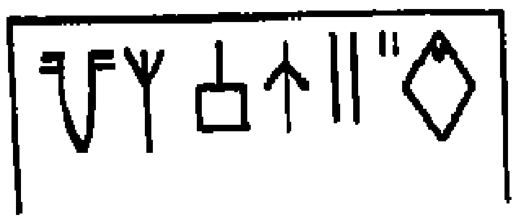
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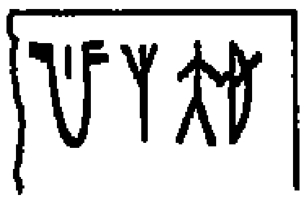
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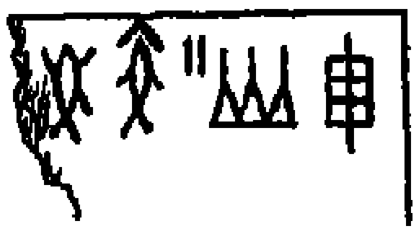

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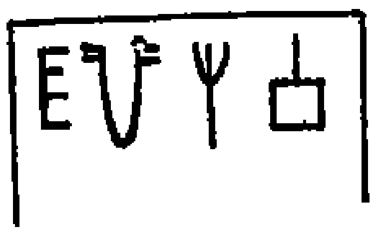
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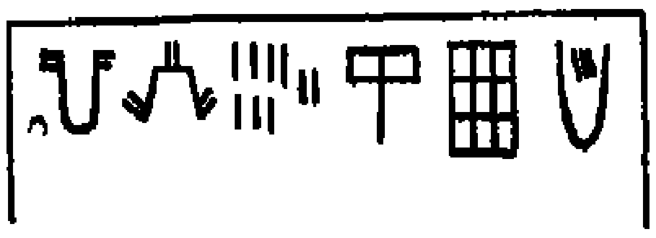
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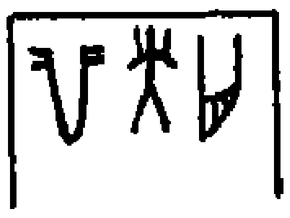
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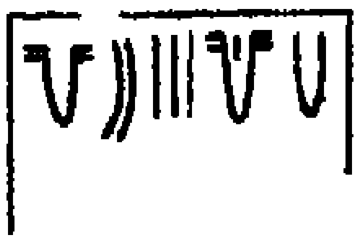

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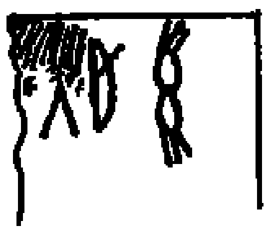
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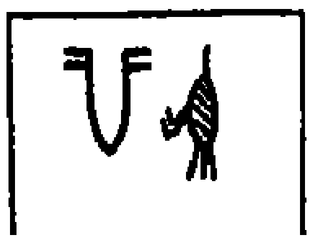
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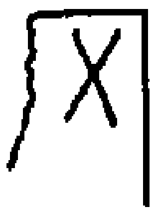
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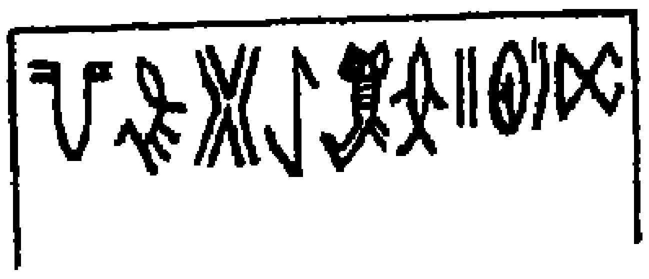

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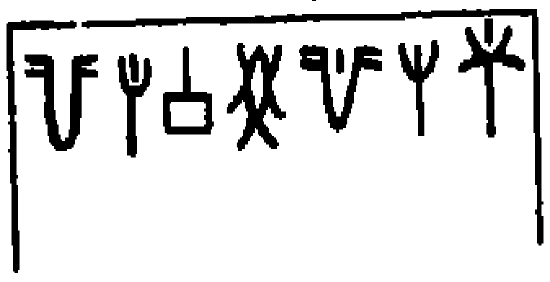
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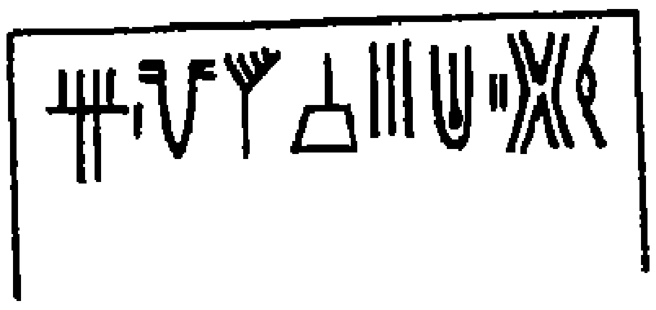
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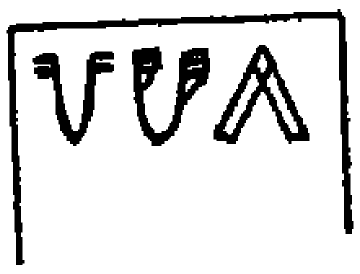
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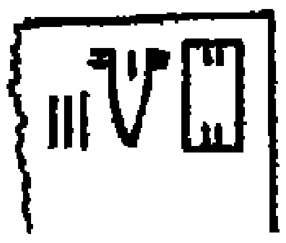

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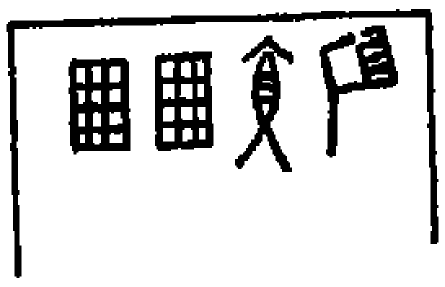
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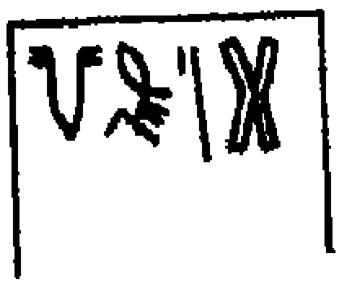
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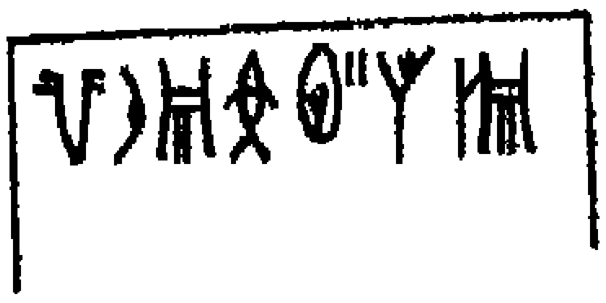
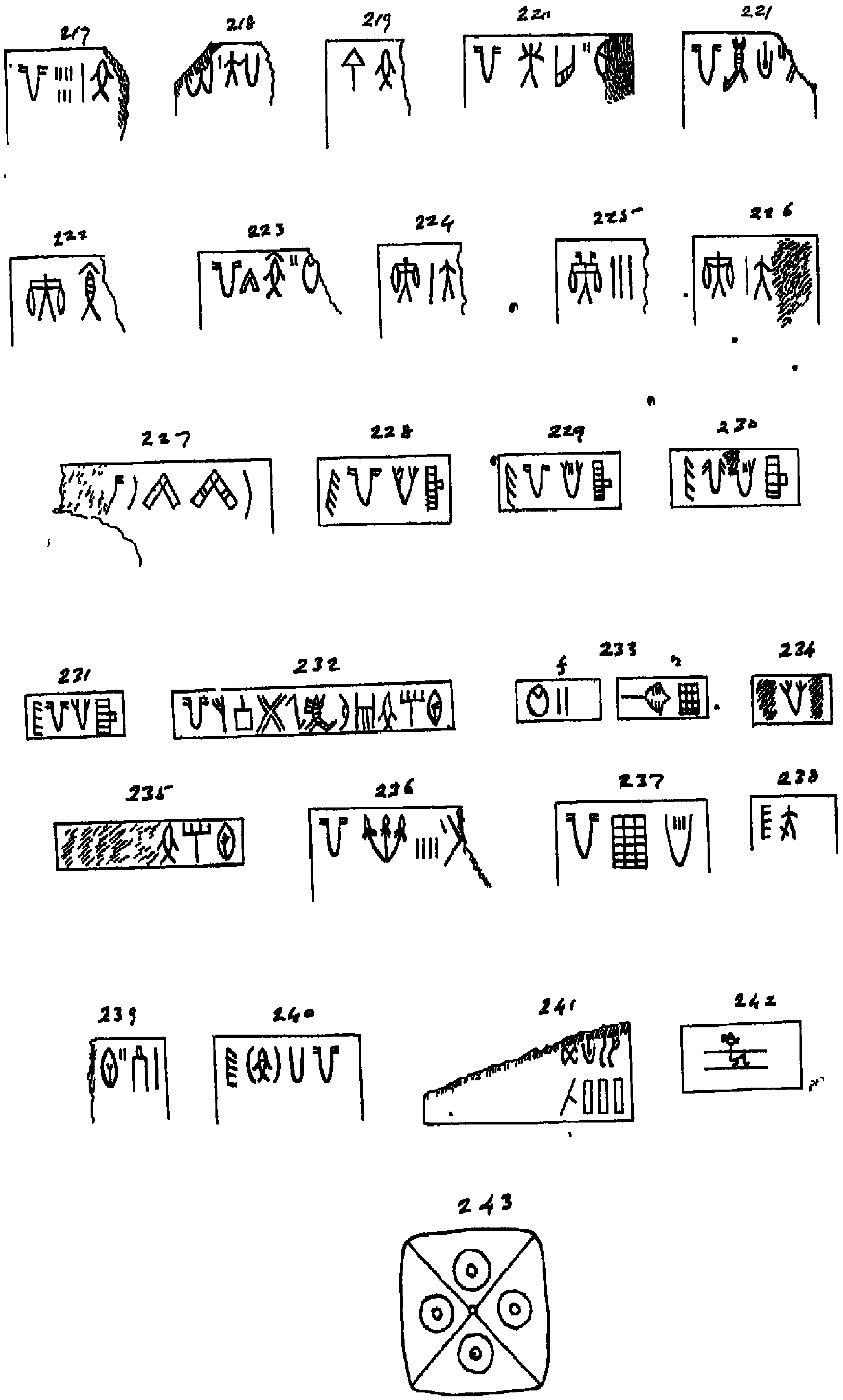
Plate XXXVII.